# XV-D300
## RMT-453

# SERVICE MANUAL

*AEP Model*

### SPECIFICATIONS

| | |
|---|---|
| Aerial input | 75-ohm aerial terminal |
| Aerial output | 75-ohm aerial terminal |
| Aerial output signal | UHF channels E30 to E39 (variable) |
| Video input | LINE IN V (phono jack) (1)<br>Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative |
| Video output | LINE OUT V (phono jack) (1)<br>Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative |
| Audio inputs | LINE IN L/R (phono jack) (2)<br>Input level: −10 dBs (0 dBs = 0.775 Vrms)<br>Input impedance: more than 47 k ohms |
| Audio outputs | LINE OUT L/R (phono jack) (2)<br>Output level: −10 dBs at load impedance 47 k ohms |
| CONTROL L connector | Stereo mini-mini jack (1) |
| Power requirements | 220 V AC, 50 Hz |
| Power consumption | 15 W |
| Operating temperature | 5°C-40°C (41°F-104°F) |
| Storage temperature | −20°C-+60°C (−4°F-+140°F) |
| Dimensions | Approx. 215 × 55 × 265 mm (w/h/d)<br>($8^1/_2 \times 2^1/_4 \times 10^1/_2$ inches)<br>incl. projecting parts and controls |
| Weight | Approx. 2.5 kg (5 lb 8 oz) |
| Accessories supplied | Remote Commander (1)<br>R6 (size AA) battery (2)<br>CONTROL L connecting cord (1)<br>75-ohm coaxial with IEC connectors (1)<br>Screwdriver for RF channel adjustment (1) |

Design and specifications are subject to change without notice.

**Note**

This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

- **SERVICE OF REMOTE COMMANDER RMT-453**

**Remote commander RMT-453 is available as a unit. But as individual parts the battery case lid of commander is only available.**

MICROFILM

# DIGITAL VIDEO ADAPTOR

# SONY®

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**SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

This section is extracted from instraction manual.

## 1-1. PRECAUTIONS

**On safety**

- Before operating, check that the operating power voltage and frequency of the unit are identical with those of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

**On installation**

- Allow adequate air circulation to prevent internal heat build-up.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

**On operation**

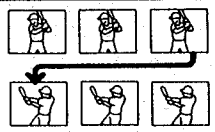
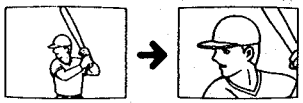
- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- The cabinet of the unit may become hot during operation. This is not a fault with the unit.



## 1-2. FEATURES

### Digital Pictures

The XV-D300 processes VTR playback pictures or TV pictures in the memory circuit and display them on the TV screen with special effects, called digital pictures.

| | | |
|---|---|---|
| **Stop Motion** (Page 12) | A picture can be frozen at the required point. | |
| **Flash Motion** (Page 13) | Freeze pictures can be viewed successively at specific intervals. |  |
| **Multi-picture (MEMO, AUTO and FLASH)** (Page 14) | 9 frames of freeze pictures according to the passage of time can be viewed on the screen. | |
| **Mosaic Art** (Page 16) | A mosaic picture can be viewed. | |
| **Picture Art (Solarization)** (Page 16) | A picture with a solarization effect can be viewed. | |
| **Zoom** (Page 17) | A portion of the picture can be zoomed on the whole screen. |  |
| **Recall** (Page 18) | The desired picture can be stored in memory and recalled as required. | |

## MULTI-picture

**—— to view 9 frames of freeze pictures on the screen**

**MEMO MULTI-picture** — to display pictures successively at the desired intervals

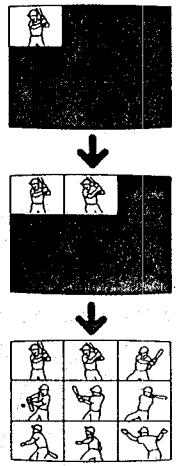
**Press the MEMO MULTI button.**
The motion picture will appear in the upper left section of the screen.
Each time the MEMO MULTI button is pressed, the previous picture will freeze and the motion picture will appear in the next section.
When the last section is filled, all the pictures will freeze.
By pressing the MEMO MULTI button again, the motion picture will appear in the upper left section again.

**AUTO MULTI-picture** — to display pictures successively at specific intervals

**Press the AUTO MULTI button.**
A freeze picture will be displayed in the upper left section of the screen. After a given period of time, the next freeze picture will appear in the next section. This sequence will be repeated until all the sections are filled.

**FLASH MULTI-picture** — to display multi-pictures cyclically

**Press the FLASH MULTI button.**
Freeze pictures will appear in 9 frames successively.
When the last section of the screen is filled, the next freeze picture will appear in the upper left section, and the same sequence will be repeated cyclically.

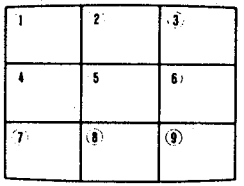


**To change the intervals at which the next freeze picture appears in AUTO or FLASH MULTI mode**
By pressing the EFFECT + button, the interval becomes shorter, and by pressing the EFFECT – button, it becomes longer. Eight intervals can be selected.



**To resume normal viewing**
Press the DIGITAL OFF button.

**Zooming in multi-picture mode**
1 After all the sections of the screen are filled with the pictures, press the ZOOM button.
2 Press the EFFECT + or – button to select the picture to be zoomed.
By pressing the + button, the pictures in sections ① to ⑨ are zoomed cyclically in order, and by pressing the – button, the pictures are zoomed in the reverse order ( ① → ⑨ → ⑧ → ... ① ).

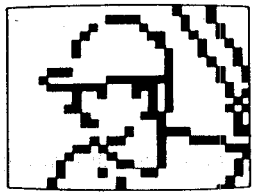



**Notes**
- When zocming is activated for a section which has not been filled with a picture, that section will be skipped and the next section filled with a picture will be zoomed.
- The zoom function cannot be activated in flash multi-picture mode.

## Mosaic Art

**— to view a mosaic picture**

**Press the MOSAIC ART button.**



**To change the size of a mosaic piece**
By pressing the EFFECT + button, a mosaic piece becomes bigger, and by pressing the EFFECT – button, it becomes smaller. Three sizes can be selected.

**To resume the normal picture**
Press the MOSAIC ART button again or press the DIGITAL OFF button.

## Picture Art (Solarization)

**— to view a picture with a solarization effect**

**Press the PICTURE ART button.**

**To change the level of the solarization effect**
By pressing the EFFECT + button, the effect is increased, and by pressing the EFFECT – button, it is decreased. Three levels can be selected.

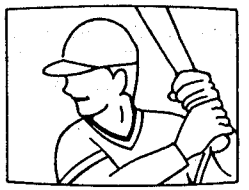
**To resume the normal picture**
Press the PICTURE ART button again or press the DIGITAL OFF button.



## Zoom

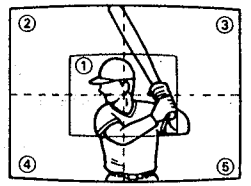
**— to zoom a part of the picture**

**Press the ZOOM button.**
The centre portion of the picture is zoomed up to fill the whole screen.



**To change the portion of the picture to be zoomed**
By pressing the EFFECT + button, the portion of the picture ① to ⑤ is cyclically zoomed in order, and by pressing the EFFECT – button, the portion is zoomed in the reverse order ( ① → ⑤ → ④ → ... ① ).

**To resume the normal picture**
Press the ZOOM button again or press the DIGITAL OFF button.



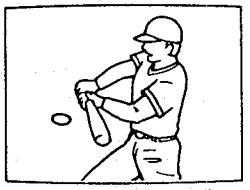

**Notes**

- The zoomed picture appears somewhat mosaic.
- When the center portion of the picture is zoomed, the zoomed picture may be broken horizontally at about half height of the screen.

The zoom, picture art or mosaic art function can be activated in stop motion, flash motion or recall mode.

## Recall

**—— to store the desired scene in memory and recall**



**To store in memory**

1 When the desired scene is displayed, press the STOP MOTION button. The picture freezes and is stored in memory.
2 To resume viewing the programme, press the DIGITAL OFF button.

**Tc recall the stored picture**

Press the RECALL button.

**To resume normal viewing**

Press the DIGITAL OFF button.

If the DIGITAL OFF button is pressed in zoom, picture art or mosaic art mode, the displayed picture is stored in memory as a freeze picture and can be recalled with the RECALL button.

**Notes**

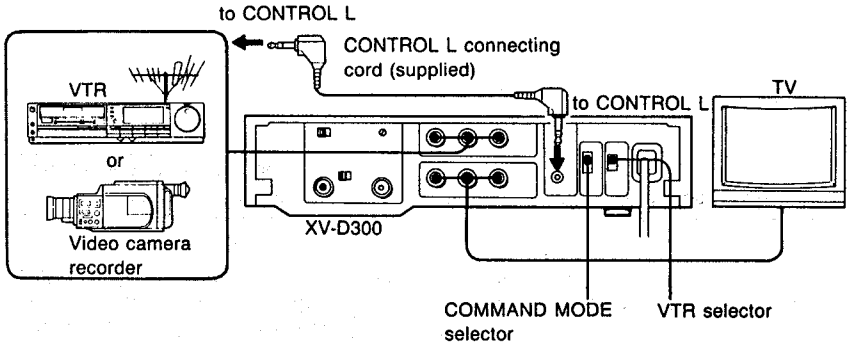
- Once a picture is stored in memory, it can be recalled repeatedly by pressing the RECALL button.
  However, when any of the digital picture functions is used, the previously stored picture will be overwritten and the last scene is stored in memory.
- The RECALL button operates only after any of the digital picture functions has been used with the power on.
- The RECALL button cannot operate while another digital picture function is in use.



## 1-6. OPERATING A VTR OR VIDEO CAMERA RECORDER WITH THE SUPPLIED REMOTE COMMANDER

If your VTR or video camera recorder is equipped with a CONTROL L connector, it can be controlled by the Remote Commander supplied with this unit.

### Connection



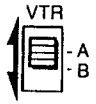

### Setting the COMMAND MODE and VTR Selectors

For remote control, set the COMMAND MODE and VTR selectors on the rear according to the connected VTR or video camera recorder.

**COMMAND MODE selector**

Set the COMMAND MODE selector on the rear of the XV-D300 and that on the rear of the Remote Commander to the same position.

**VTR selector**




| Position | Connected equipment |
|---|---|
| A | Sony video camera recorder CCD-V88E, CCD-F335E, CCD-F250E, or CCD-F150E |
| B | Any other VTR or video camera recorder |

## Wireless Remote Control Operation

The supplied Remote Commander can operate certain remote control VTRs by pointing it directly to the remote sensor of the VTR.

- If the VTR has a command mode selector, set the COMMAND MODE selector of the commander to the same position as that selected on the VTR.
- If the VTR is not provided with a command mode selector, set the COMMAND MODE selector of the commander as follows.
  VTR1: for Sony Betamax VTRs
  VTR2: for 8 mm format VTRs
  VTR3: for Sony VHS format VTRs

**To avoid having the VTR connected through the control L cable and the other VTR functioning simultaneously**
Set the COMMAND MODE selector on the XV-D300 to a different command mode position from the command mode of the other VTR. Simply by switching the COMMAND MODE selector on the commander, you can control two VTRs separately.

## Remote Control Operations

Point the Remote Commander toward the remote sensor of XV-D300, and press the button on the commander.
To operate the video camera recorder, set the POWER switch on the video camera recorder to VTR (or PLAYER).

| | |
|---|---|
| **To turn the VTR on/off** | Press VTR POWER. |
| **To select channels** | Press PROGRAM +/−. |
| **To record** | Press the two ● REC buttons simultaneously. |

| | |
|---|---|
| **Various playback modes** | |
| **To freeze a picture** | Press ❚❚ PAUSE during playback. |
| **To advance the picture frame by frame** | Press FRAME in freeze picture mode. |
| **To obtain a slow motion picture** | Press × 1/5 or × 1/10 during playback or in freeze picture mode. |
| **To view the picture mometarily in fastforward or rewind mode (Picture search)** | Keep FF or REW pressed in fast-forward or rewind mode. |
| **To view high-speed forward or reverse pictures (Locked picture search)** | Press ⏩ or ⏪ SEARCH momentarily during normal playback or in any of the various playback modes. To resume normal playback, press PLAY. |

- The PLAY, ❚❚ PAUSE, REW, FF and STOP buttons function the same as the buttons on the VTR or video camera recorder.

**Note**
The buttons on the VTR or video camera recorder may not function during locked picture search operation.







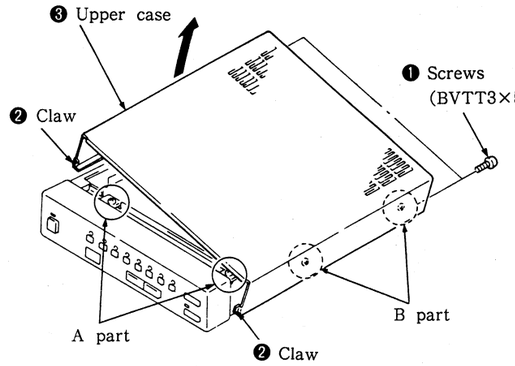


# SECTION 2
# DISASSEMBLY

### 2-1. REMOVAL OF UPPER CASE

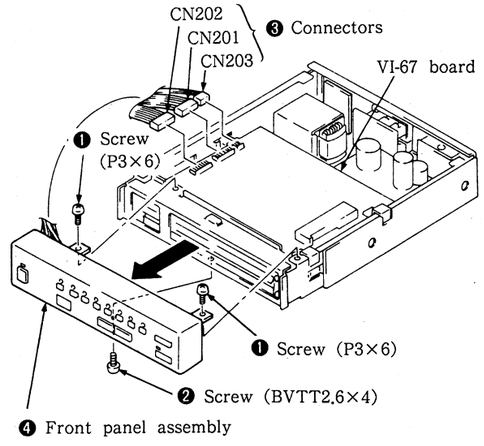
1) Remove two screws ❶.
2) Slide the upper case 3 backward as far as the right and left claws ❷ come off from the front panel.
3) Unfasten the left claw ❷. Slightly open the lower part of the upper case 3 and remove it in the direction of arrow.

**Note** : Do not remove the upper case from the rear panel side of from the rigth side. It is hardly possible because of the screws on A part and B part and may cause damage or bend.



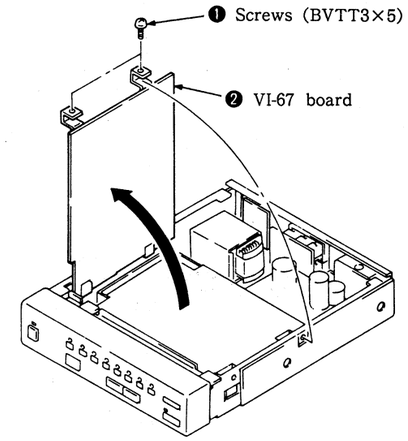

### 2-2. REMOVAL OF FRONT PANEL ASSEMBLY

1) Remove two screws ❶.
2) Remove a screw ❷.
3) Disconnect the three connectors (CN201, CN202 and CN203) ❸ from the VI-47 board.
4) Remove front panel assembly ❹ in the direction of arrow.



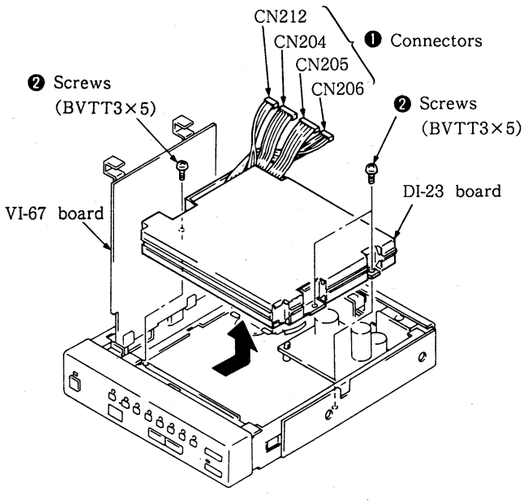

### 2-3. OPENING THE VI-67 BOARD

1) Remove two screws ❶.
2) Open the VI-47 board ❷ in the direction of arrow.




### 2-4. REMOVAL OF THE DI-23 BOARD

1) Open the VI-67 board by step 2-3.
2) Disconnect four connectors (CN204, CN205, CN206 and CN212) ❶ from the VI-47 board.
3) Remove three screws ❷.
4) Remove the DI-23 board ❸ in the direction of arrow.

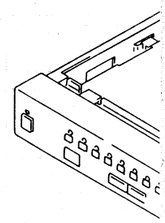



### 2-5. REMOV
### BOARD

1) Discon
from t
2) Remov
transfo
3) Discon
67 boa
4) Remov
PW-65

❸

❹ Power
transforme



❺ Connecto

tion of arrow.

×5)

N205, CN206
l.

direction of

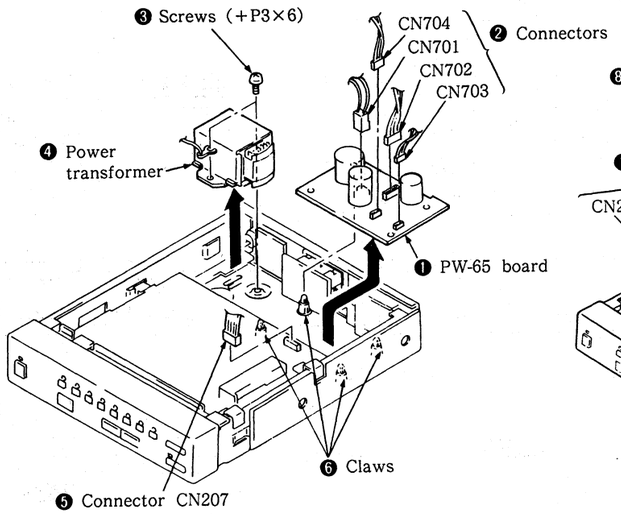
onnectors

Screws
(BVTT3×5)

DI-23 board
/

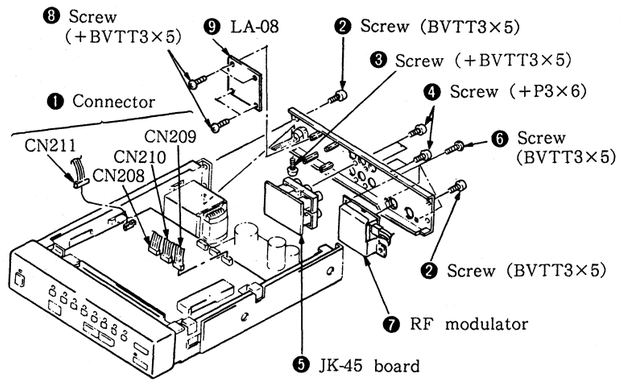
### 2-5. REMOVAL OF POWER TRANSFORMER AND PW-69 BOARD

1) Disconnect two connectors (CN702 and CN703) ❷ from the PW-69 board ❶.
2) Remove two screws ❸ and detach the power transformer ❹.
3) Disconnect one connector (CN207) ❺ from the VI-67 board.
4) Remove four claws of the PCB holder and detach PW-65 board ❶.




### 2-6. REMOVAL OF THE JK-45, LA-08 BOARD AND RF MODULATOR

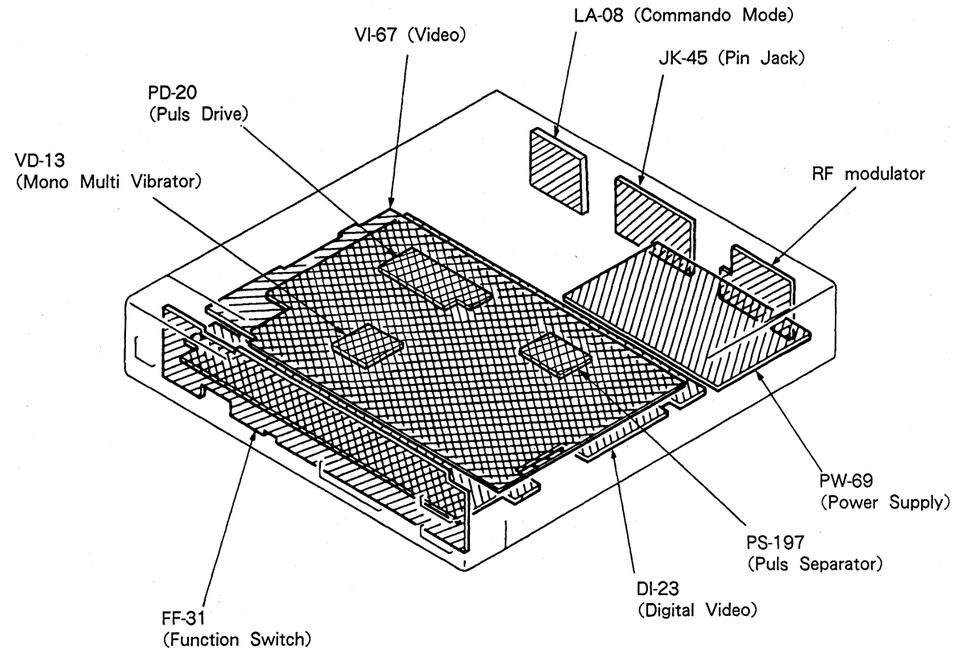
1) Disconnect three connectors (CN208, CN209, CN210 and CN211) ❶ from the VI-69 board.
2) Remove three screws ❷ and detach the rear panel ❸.
3) Remove four screws ❹ and detach the JK-45 board ❺.
4) Remove three screws ❻ and detach the RF modulator ❼.
5) Remove four screws ❽ and detach the LA-08 board ❾.



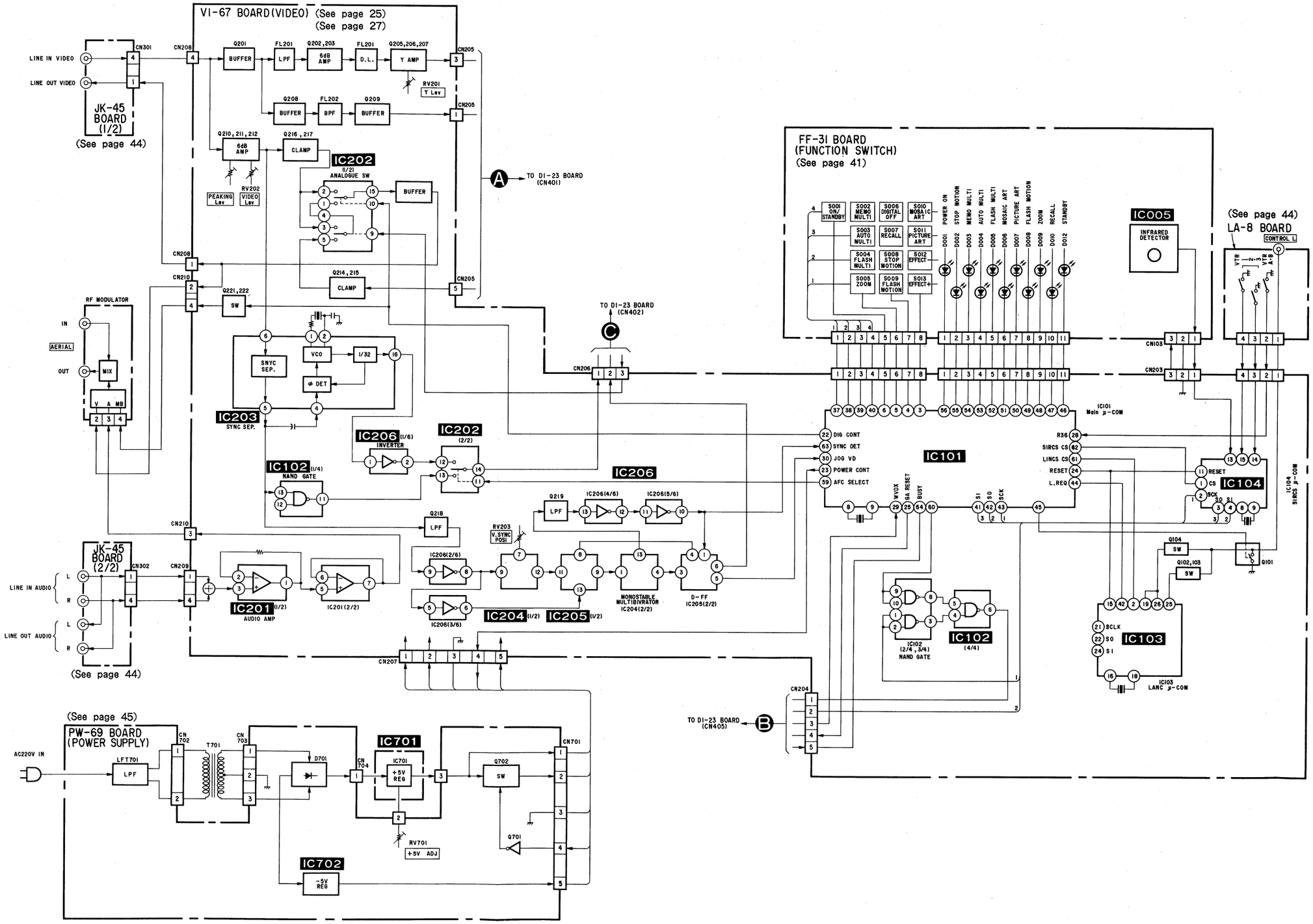



## SECTION 3
## DIAGRAMS

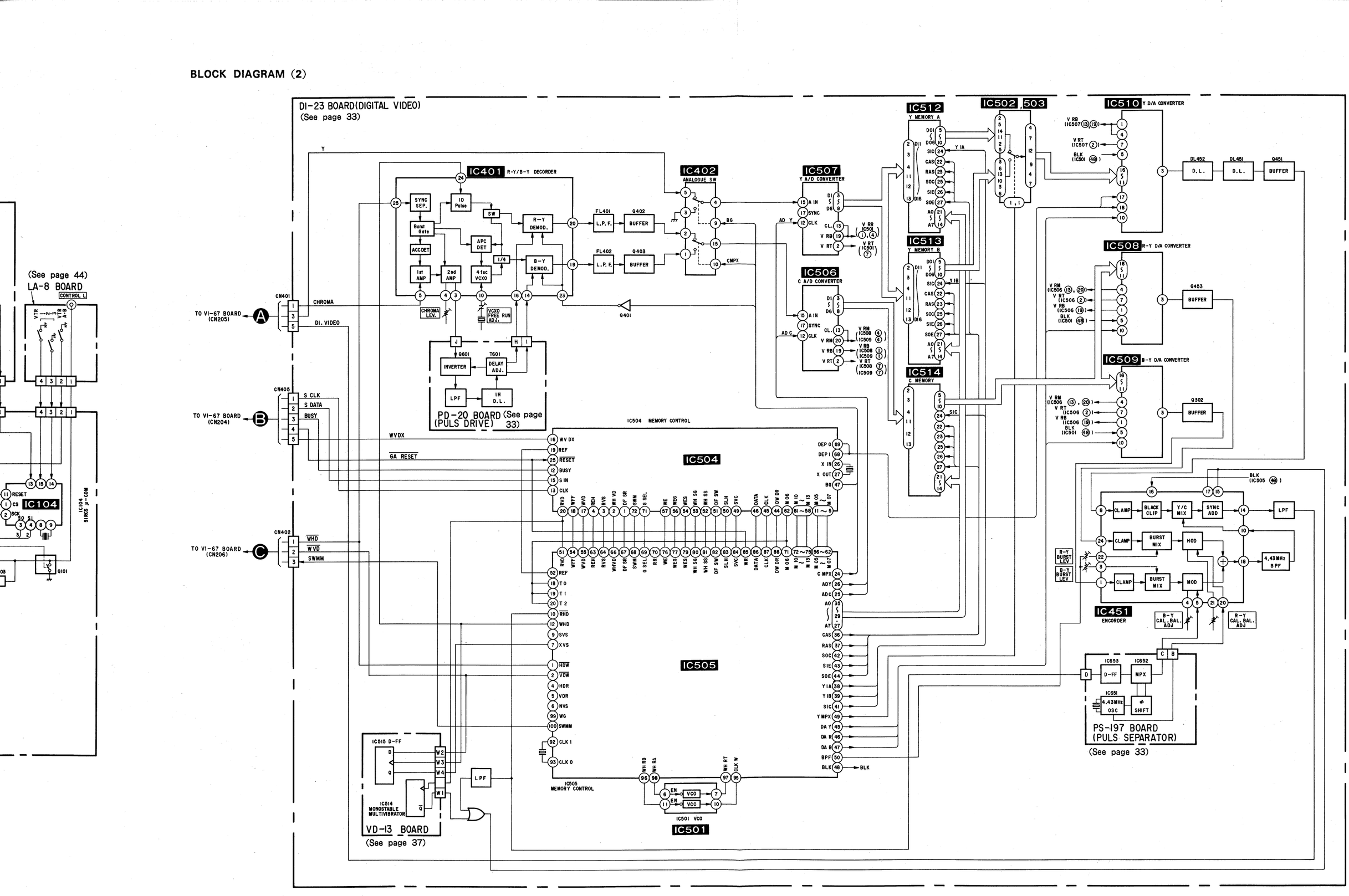
### 3-1. CIRCUIT BOARDS LOCATION



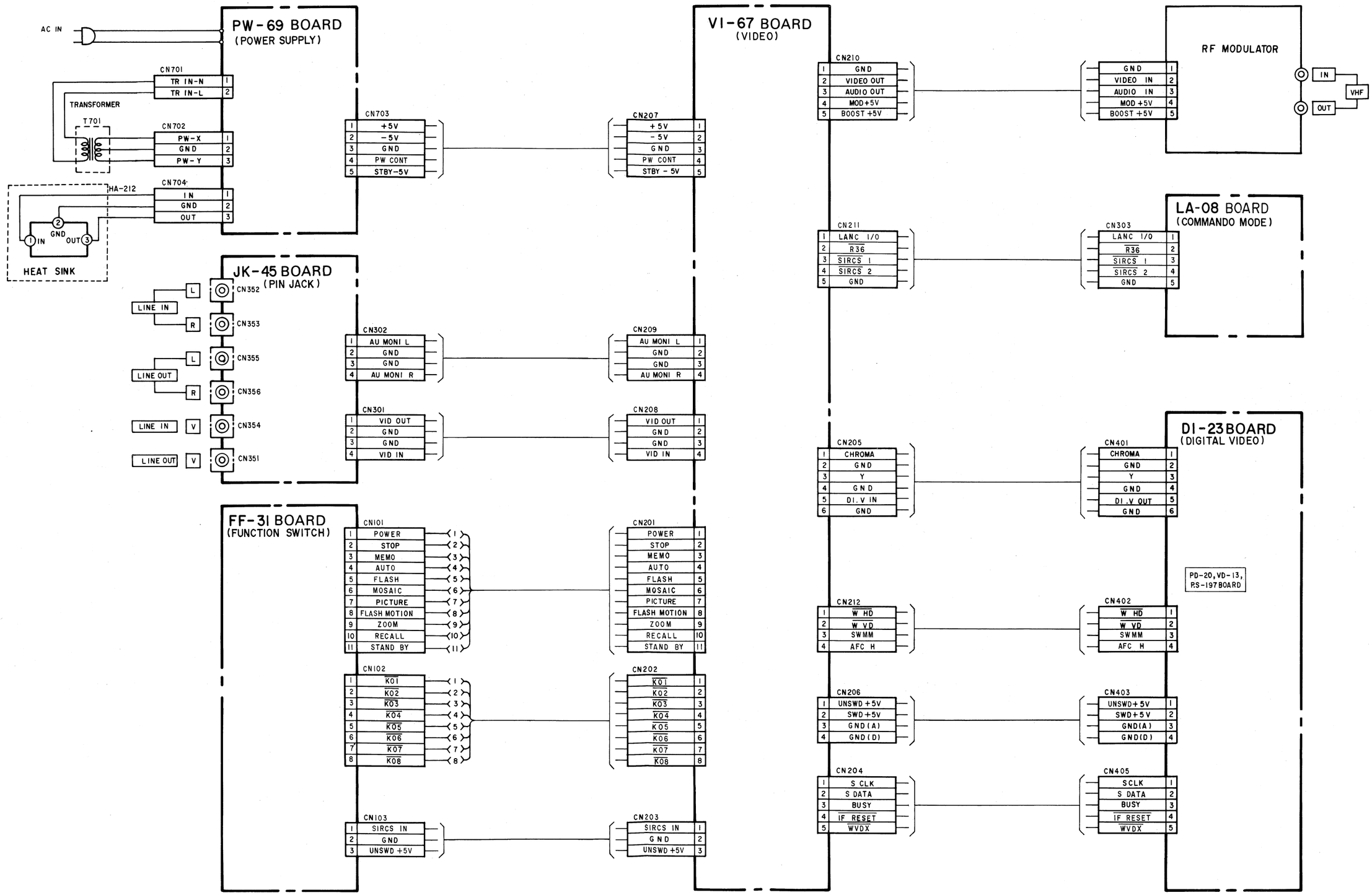
## 3-2. BLOCK DIAGRAM (1)

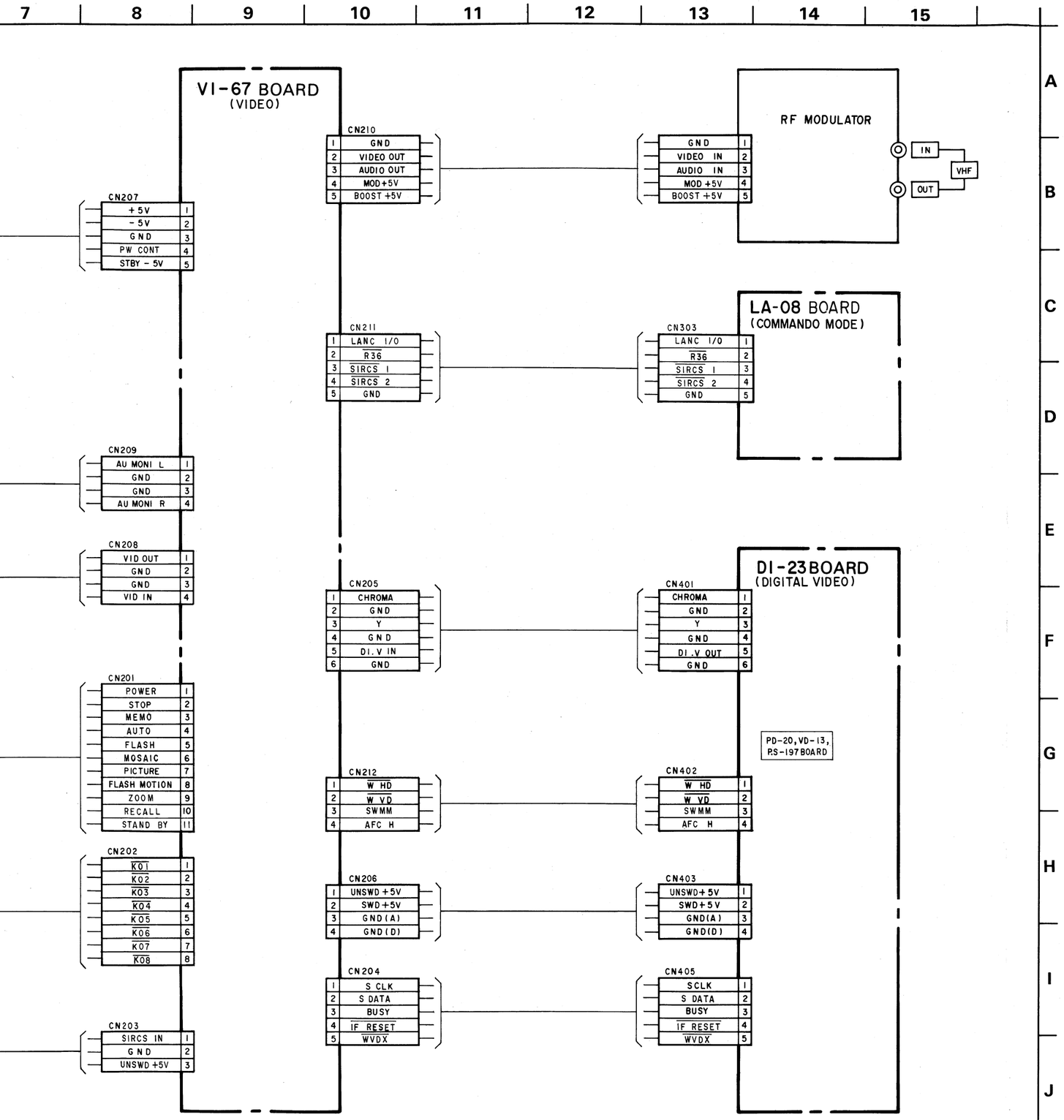


## BLOCK DIAGRAM (2)



## 4-1. FRAME SCHEMATIC DIAGRAM




7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
VI-67 BOARD
(VIDEO)
CN210
1 GND
2 VIDEO OUT
3 AUDIO OUT
4 MOD +5V
5 BOOST +5V
RF MODULATOR
GND 1
VIDEO IN 2
AUDIO IN 3
MOD +5V 4
BOOST +5V 5
IN
VHF
OUT
CN207
+5V 1
-5V 2
GND 3
PW CONT 4
STBY -5V 5
CN211
1 LANC I/O
2 R36
3 SIRCS I
4 SIRCS 2
5 GND
LA-08 BOARD
(COMMANDO MODE)
CN303
LANC I/O 1
R36 2
SIRCS I 3
SIRCS 2 4
GND 5
CN209
AU MONI L 1
GND 2
GND 3
AU MONI R 4
CN208
VID OUT 1
GND 2
GND 3
VID IN 4
CN205
1 CHROMA
2 GND
3 Y
4 GND
5 DI.V IN
6 GND
DI-23 BOARD
(DIGITAL VIDEO)
CN401
CHROMA 1
GND 2
Y 3
GND 4
DI.V OUT 5
GND 6
CN201
POWER 1
STOP 2
MEMO 3
AUTO 4
FLASH 5
MOSAIC 6
PICTURE 7
FLASH MOTION 8
ZOOM 9
RECALL 10
STAND BY 11
PD-20, VD-13,
PS-197 BOARD
CN212
1 W HD
2 W VD
3 SWMM
4 AFC H
CN402
W HD 1
W VD 2
SWMM 3
AFC H 4
CN202
K01 1
K02 2
K03 3
K04 4
K05 5
K06 6
K07 7
K08 8
CN206
1 UNSWD +5V
2 SWD +5V
3 GND(A)
4 GND(D)
CN403
UNSWD +5V 1
SWD +5V 2
GND(A) 3
GND(D) 4
CN204
1 S CLK
2 S DATA
3 BUSY
4 IF RESET
5 WVDX
CN405
SCLK 1
S DATA 2
BUSY 3
IF RESET 4
WVDX 5
CN203
SIRCS IN 1
GND 2
UNSWD +5V 3

## 4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the nscessary note is printed in each block.)

For printed wiring boards :

- o— : indicates a lead wire mounted on the componet side.
- ● : Through hole.
- ▒ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.

| Note : | |
|---|---|
| Conductor side : | Parts on the conductor side being seen from the conductor are stated. |
| Component side : | Parts on the component side being seen from the component are stated. |

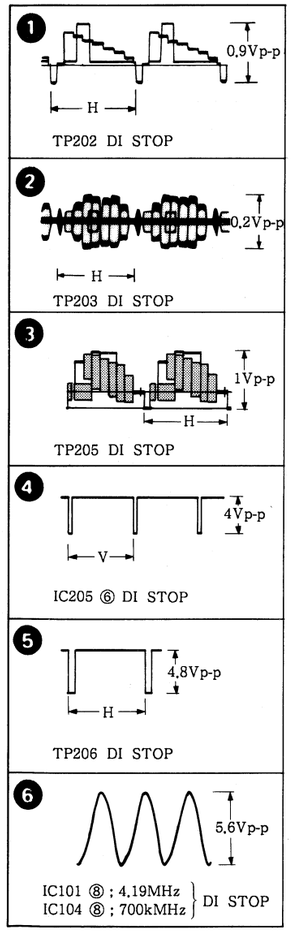
For schematic diagram :

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, chip resistors are 1/10W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic carve B, unless otherwise noted.
- : nonflammeble resistor.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.
- : B+ line.
- : B− line.
- : IN/OUT direction of B line (+, −).
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltages are taken with a VOM (Input impedance 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

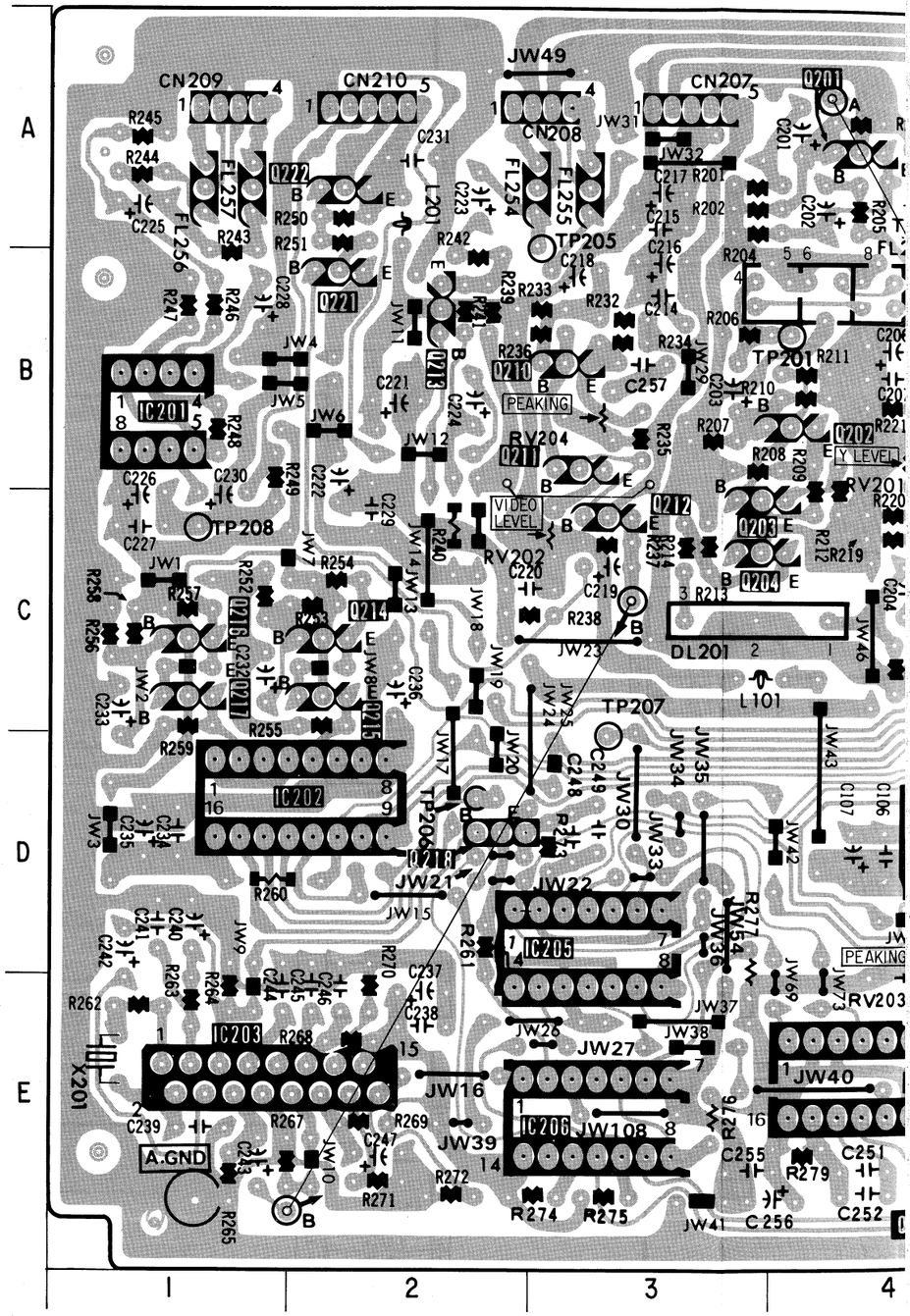
When indicating parts by reference number, please include the board name.

### VI-67 BOARD




| VI-67 Board | |
|---|---|
| D101 | B-6 |
| D102 | E-5 |
| D103 | E-6 |
| D104 | E-6 |
| D105 | D-6 |
| D106 | B-7 |
| IC101 | C-6 |
| IC102 | D-4 |
| IC103 | E-5 |
| IC104 | B-6 |
| IC201 | B-1 |
| IC202 | D-2 |
| IC203 | E-1 |
| IC204 | E-4 |
| IC205 | D-3 |
| IC206 | E-3 |
| Q101 | C-7 |
| Q102 | E-6 |
| Q103 | E-6 |
| Q104 | E-6 |
| Q201 | A-4 |
| Q202 | B-4 |
| Q203 | C-3 |
| Q204 | C-3 |
| Q205 | C-4 |
| Q206 | C-4 |
| Q207 | B-4 |
| Q208 | A-5 |
| Q209 | B-5 |
| Q210 | B-3 |
| Q211 | B-3 |
| Q212 | C-3 |
| Q213 | B-2 |
| Q214 | C-2 |
| Q215 | C-2 |
| Q216 | C-1 |
| Q217 | C-1 |
| Q218 | D-2 |
| Q219 | E-4 |
| Q221 | B-2 |
| Q222 | A-2 |

### VI-67 BOARD (CONDUCTOR SIDE)



# VI-67 BOARD (CONDUCTOR SIDE)

VI-67 Board

| | |
|---|---|
| D101 | B-6 |
| D102 | E-5 |
| D103 | E-6 |
| D104 | E-6 |
| D105 | D-6 |
| D106 | B-7 |
| IC101 | C-6 |
| IC102 | D-4 |
| IC103 | E-5 |
| IC104 | B-6 |
| IC201 | B-1 |
| IC202 | D-2 |
| IC203 | E-1 |
| IC204 | E-4 |
| IC205 | D-3 |
| IC206 | E-3 |
| Q101 | C-7 |
| Q102 | E-6 |
| Q103 | E-6 |
| Q104 | E-6 |
| Q201 | A-4 |
| Q202 | B-4 |
| Q203 | C-3 |
| Q204 | C-3 |
| Q205 | C-4 |
| Q206 | C-4 |
| Q207 | B-4 |
| Q208 | A-5 |
| Q209 | B-5 |
| Q210 | B-3 |
| Q211 | B-3 |
| Q212 | C-3 |
| Q213 | B-2 |
| Q214 | C-2 |
| Q215 | C-2 |
| Q216 | C-1 |
| Q217 | C-1 |
| Q218 | D-2 |
| Q219 | E-4 |
| Q221 | B-2 |
| Q222 | A-2 |

VI-67 BOARD

1. 0.9Vp-p, H — TP202 DI STOP
2. 0.2Vp-p, H — TP203 DI STOP
3. 1Vp-p, H — TP205 DI STOP
4. 4Vp-p, V — IC205 ⑥ DI STOP
5. 4.8Vp-p, H — TP206 DI STOP
6. 5.6Vp-p — IC101 ⑧ ; 4.19MHz, IC104 ⑧ ; 700kMHz } DI STOP

VI-67 BOARD (1/2) (SYSTEM CONTROL)

CN201
POWER 1
STOP 2
MEMO 3
AUTO 4
FLASH 5
MOSAIC 6
PICTURE 7
FLASH MOTON 8
ZOOM 9
RECALL 10
STAND BY 11

TO FF-31 BOARD (CN101) (See page 41)

CN202
KO 1 1
KO 2 2
KO 3 3
KO 4 4
KO 5 5
KO 6 6
KO 7 7
KO 8 8

TO FF-31 BOARD (CN102) (See page 41)

IC101 μPD75108 MODE CONTROL

IC102 IC102 SN74LS00N NAND GATE

IC103 μPD7507HG LINCS MICRO COMPUTER

IC104 μPD7564 SIRCS MICRO COMPUTER

Q101 DTC144ES
Q102 DTC144ES SWITCH
Q103 DTC144ES SWITCH
Q104 DTC144ES SWITCH

D101 RD8.1EW
D102 RD9.1EW
D103 RD6.8ES
D104, D105 1SS119
D106 RD6.8ES

X101 4.19MHz
X102 4.19MHz
X103 700kHz

L101 100μH

CN211
LANC I/O 1
R36 2
SIRCS I 3
SIRCS 2 4
GND 5

TO LA-8 BOARD (CN303) (See page 44)

CN204
S CLK 1
S DATA 2
BUSY 3
IF RESET 4
WVDX 5

TO DI-23 BOARD (CN405) (See page 33)

UNSWD+5V A
GND B
JOG VD C
AFC SEL D
SYNC DET E
DIG CONT F
POWER CONT G
C. SYNC H
C. SYNC I

TO VI-67 BOARD (2/2) (See page 28)

CN203
SIRCS IN 1
GND 2
UNSWD+5V 3

TO FF-31 BOARD (CN103) (See page 41)

CN207
UNSWD+5V 1
SWD+5V 2
GND 3
PW CONT 4
UNSWD-5V 5

TO PW-69 BOARD (CN703) (See page 46)

CN205
CHROMA 1
GND 2
Y 3
GND 4
DI VIDEO 5
GND 6

TO DI-23 BOARD (CN401) (See page 33)

CN209
AUDIO L 1
GND 2
GND 3
AUDIO R 4

JK-45 BOARD (CN302) (See page 44)

CN208
VIDEO OUT 1
GND 2
GND 3
VIDEO IN 4

TO JK-45 BOARD (CN301) (See page 44)

CN212
W HD 1
W VD 2
SWMM 3
AFC H 4

TO DI-23 BOARD (CN402) (See page 33)

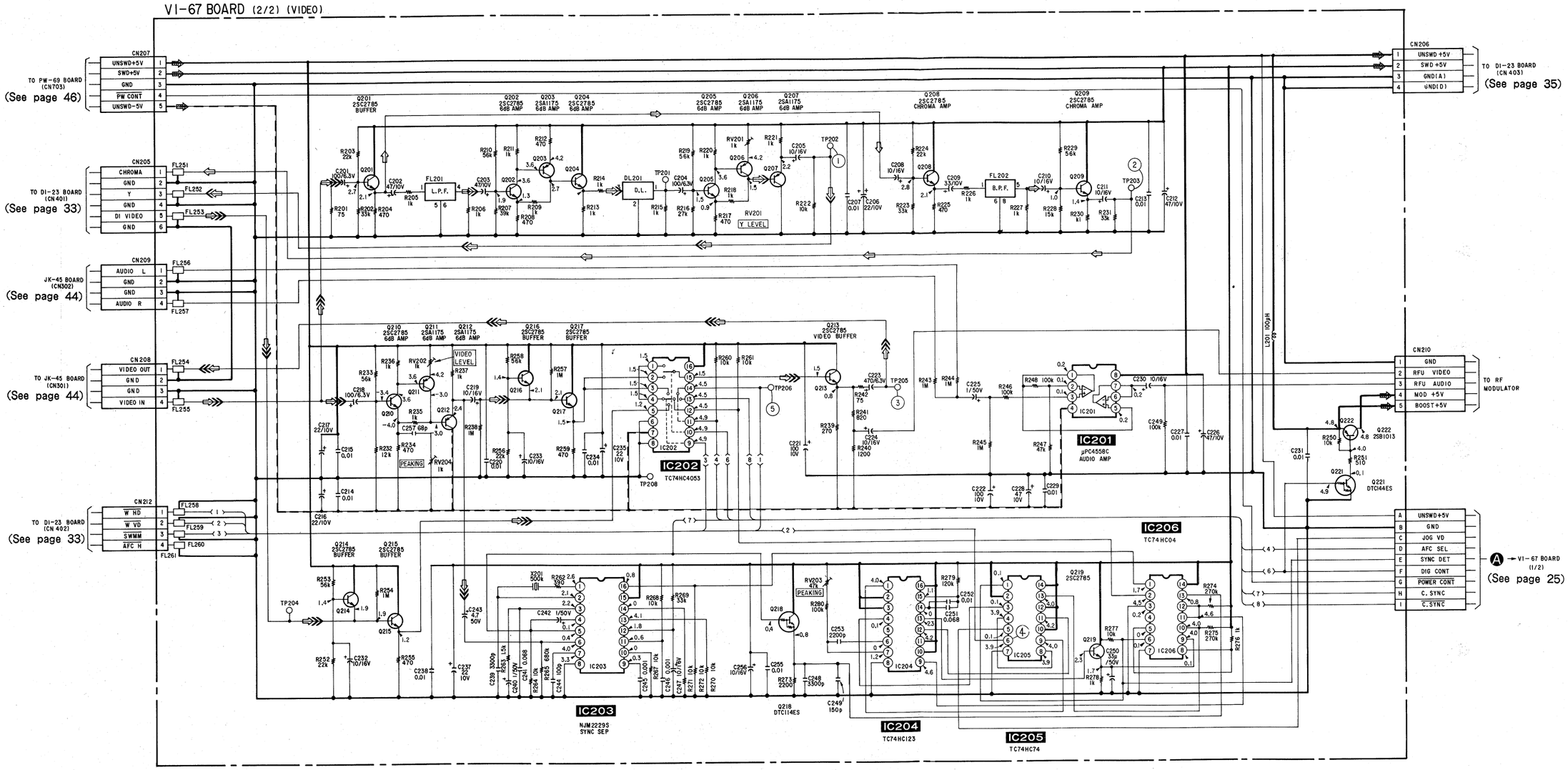
• Signal path
: LUMINANCE
: LUMINANCE
: COLOR SIG

When indicating parts by reference number, please include the board name.

# VI-67 (2/2) (VIDEO)

15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29

VI-67 BOARD (2/2) (VIDEO)




- Signal path

⇨ : LUMINANCE COLOR COMPOSITE SIGNAL

⇨ : LUMINANCE SIGNAL

⇨ : COLOR SIGNAL

When indicating parts by reference number, please include the board name.

# DI-23 (DIGITAL VIDEO)

**DI-23** BOARD

❶ 0.95Vp-p — IC401 ⑯ DI STOP

❷ 1.8Vp-p, H — IC401 ⑱ DI STOP

❸ 2.5Vp-p, H — IC401 ⑳ DI STOP

❹ 2.4Vp-p, H — IC451 ⑭ DI STOP

❺ 0.4Vp-p, H — IC451 ⑱ DI STOP

❻ 6.8Vp-p, 0.4 μsec — IC402 ⑩ DI STOP

❼ 6Vp-p, 0.2 μsec — IC506 ⑫, IC511 ㉔, IC511 ㉕, IC512 ㉔, IC513 ㉔, IC502 ① } DI STOP

❽ 0.1 μsec — IC507 ⑫ 6.8Vp-p, IC510 ⑩ 6.8Vp-p, IC501 ⑩ 5Vp-p } DI STOP

❾ 1Vp-p, H — IC508 ③ DI STOP

❿ 6.4Vp-p, 0.4 μsec — IC508 ⑩, IC509 ⑩ DI STOP

⓫ 0.7Vp-p, H — IC509 ③ DI STOP

⓬ 0.9Vp-p, H — IC510 ③ DI STOP

⓭ 5.5Vp-p, H — IC513 ㉒ DI STOP

⓮ 5.5Vp-p, H — IC513 ㉓ DI STOP

⓯ 5.5Vp-p, H — IC513 ㉖, ㉗ DI STOP

⓰ 5Vp-p, H — IC505 ㉞ DI STOP

⓱ 2.5Vp-p, 20.0MHz — IC505 ㉝ DI STOP

⓲ 4.5Vp-p, 8MHz — IC504 ⑰ DI STOP

⓳ 4.2Vp-p, H — IC501 ⑦ DI STOP

⓴ 5Vp-p, 40msec — IC504 ⑱ DI STOP

㉑ 5Vp-p, 350 μsec — IC451 ⑤ DI STOP

㉒ 2.8Vp-p, 4.43MHz — IC451 ⑤ DI STOP

For printed wiring boards :

- ○— : indicates a lead wire mounted on the componet side.
- ●— : indicates a lead wire mounted on the printed side.
- ● : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.

Note :

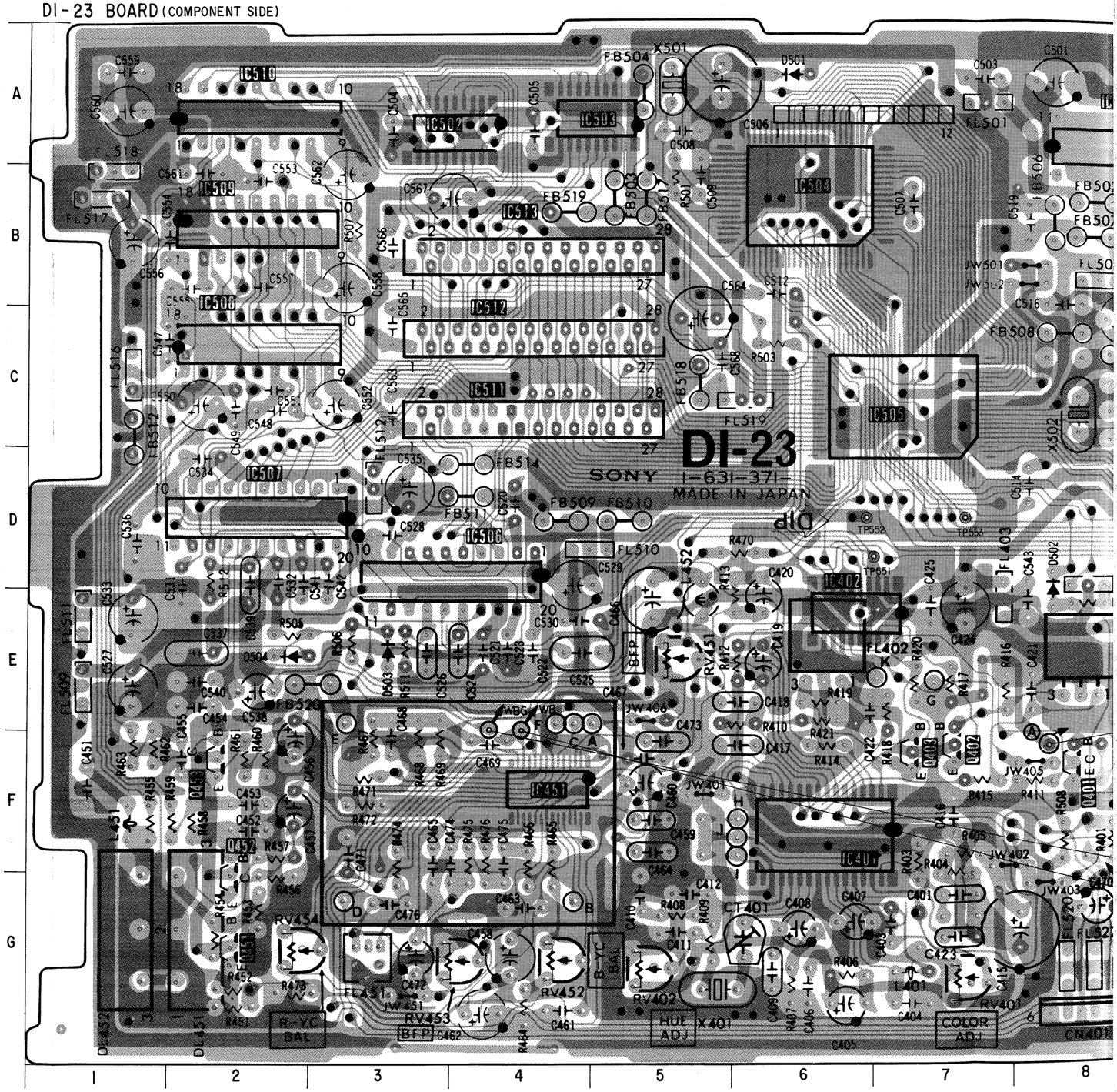
Conductor side : Parts on the conductor side being seen from the conductor are stated.

Component side : Parts on the component side being seen from the component are stated.

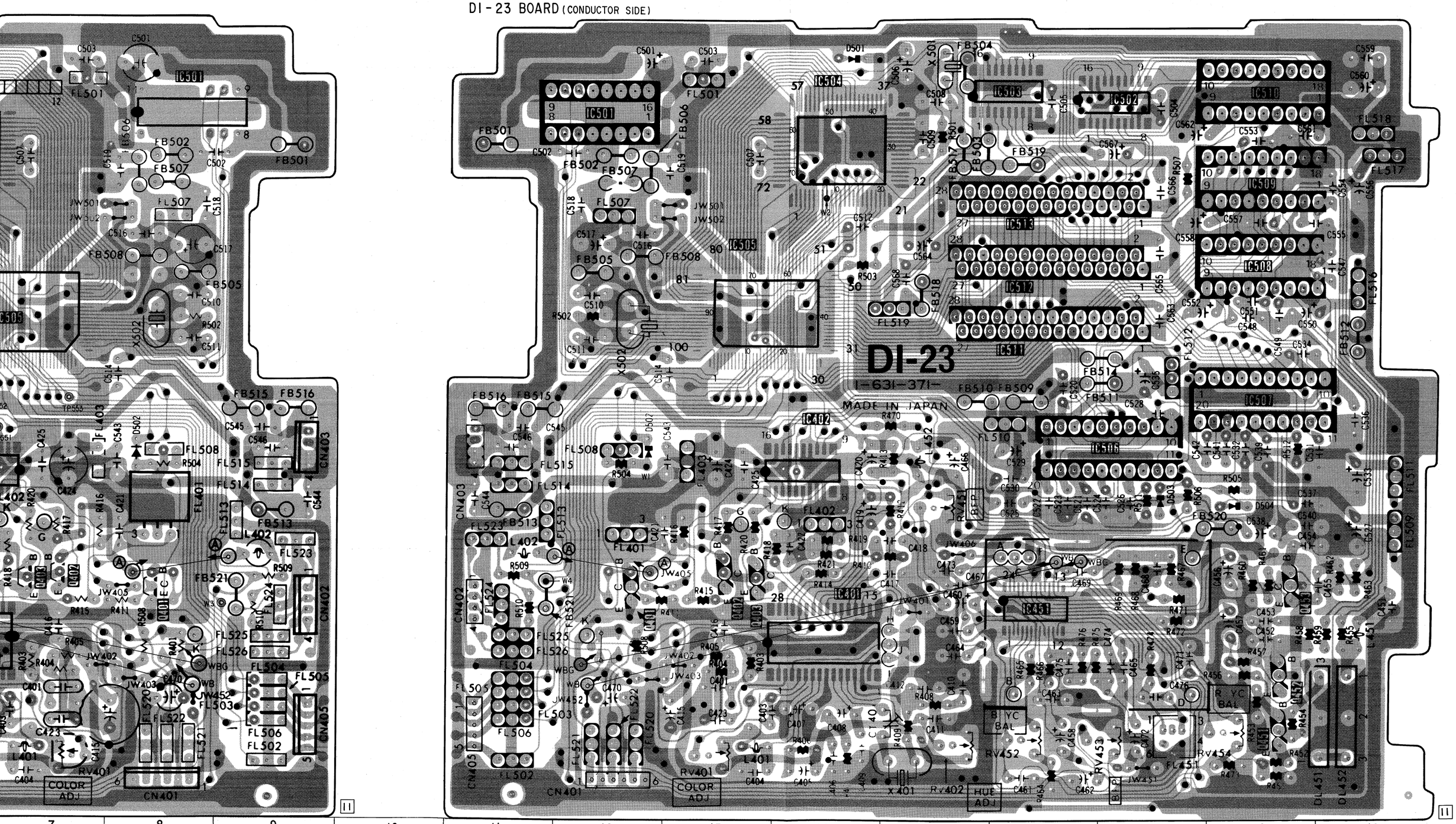
**DI-23 Board**

| | |
|---|---|
| D501 | A-14 |
| D503 | E-17 |
| D504 | E-18 |
| IC401 | F-14 |
| IC402 | E-14 |
| IC451 | F-16 |
| IC501 | A-12 |
| IC502 | A-17 |
| IC503 | A-16 |
| IC504 | B-14 |
| IC505 | C-13 |
| IC506 | D-16 |
| IC507 | D-18 |
| IC508 | C-18 |
| IC509 | B-18 |
| IC510 | A-18 |
| IC511 | C-16 |
| IC512 | C-16 |
| IC513 | B-16 |
| Q401 | F-12 |
| Q402 | F-13 |
| Q403 | F-13 |
| Q451 | G-18 |
| Q452 | G-18 |
| Q453 | F-18 |

DI-23 BOARD (COMPONENT SIDE)



DI-23 BOARD (CONDUCTOR SIDE)



# DI-23 (DIGITAL VIDEO) PS-197 (PULS SEPARATOR) PD-20 (PULS DRIVE)

DI-23 BOARD(DIGITAL VIDEO) PD-20 BOARD (PULS DRIVE) PS-197 BOARD (PULS SEPARATOR)

PD-20 BOARD

PS-197 BOARD

IC401 M51271FP DECORDER

IC402 TC74HC4053F ANALOGUE SW

IC451 M151272FP ENCORDER

IC504 M50747 – 651FP MEMORY CONTROL

IC505 M65011FP-D MEMORY CONTROL

IC651

IC652

IC653

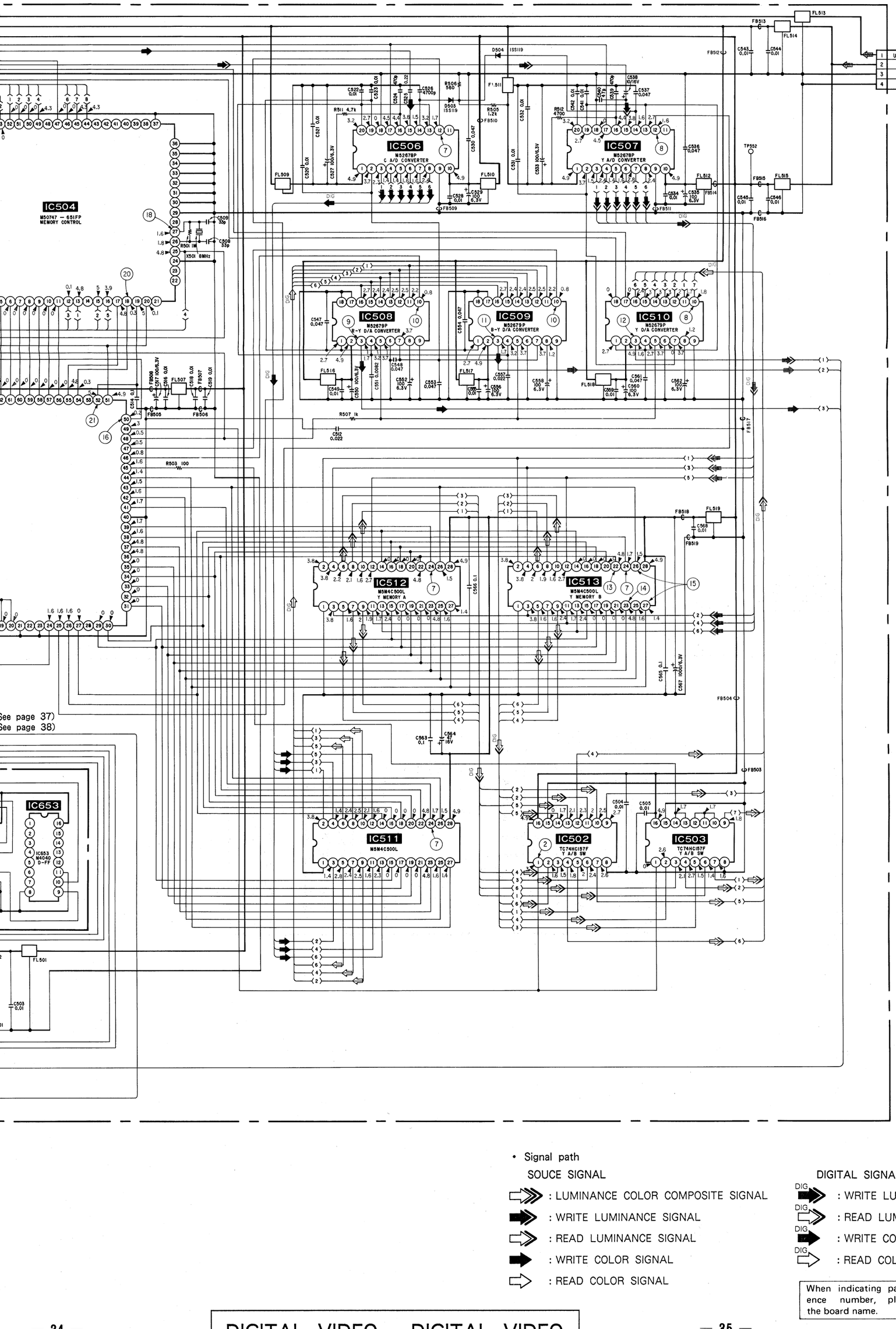
IC501 H6A-0801 VCO

CN401
CHROMA 1
GND 2
Y 3
GND 4
DI.VIDEO 5
GND 6
TO VI-67 BOARD (CN205)
(See page 27)

CN402
WHD 1
WVD 2
SWMM 3
AFC H. 4
TO VI-67 BOARD (CN212)
(See page 27)

CN405
S CLK 1
S DATA 2
BUS Y 3
IF RESET 4
WV DX 5
TO VI-67 BOARD (CN204)
(See page 25)

W1 – 4, TP551 – 553 TO VD-13 BOARD (See page 37) (See page 38)




- Signal path

SOUCE SIGNAL

- : LUMINANCE COLOR COMPOSITE SIGNAL
- : WRITE LUMINANCE SIGNAL
- : READ LUMINANCE SIGNAL
- : WRITE COLOR SIGNAL
- : READ COLOR SIGNAL

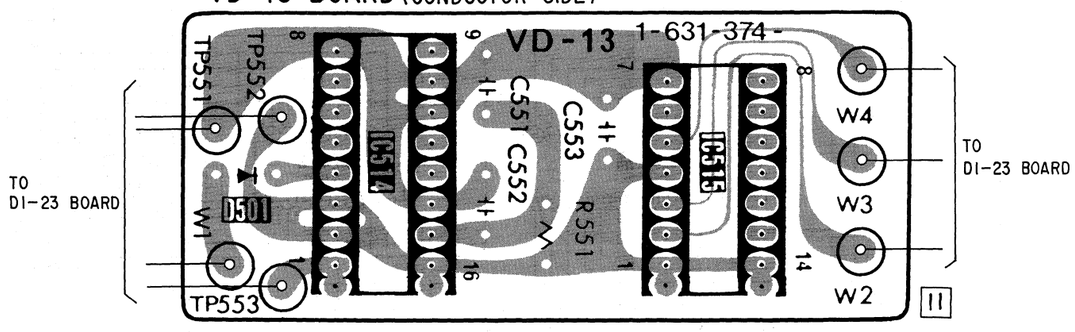
DIGITAL SIGNAL

- DIG : WRITE LUMINANCE SIGNAL
- DIG : READ LUMINANCE SIGNAL
- DIG : WRITE COLOR SIGNAL
- DIG : READ COLOR SIGNAL

When indicating parts by reference number, please include the board name.

## VD-13 (MONO MULTI VIBRATOR)

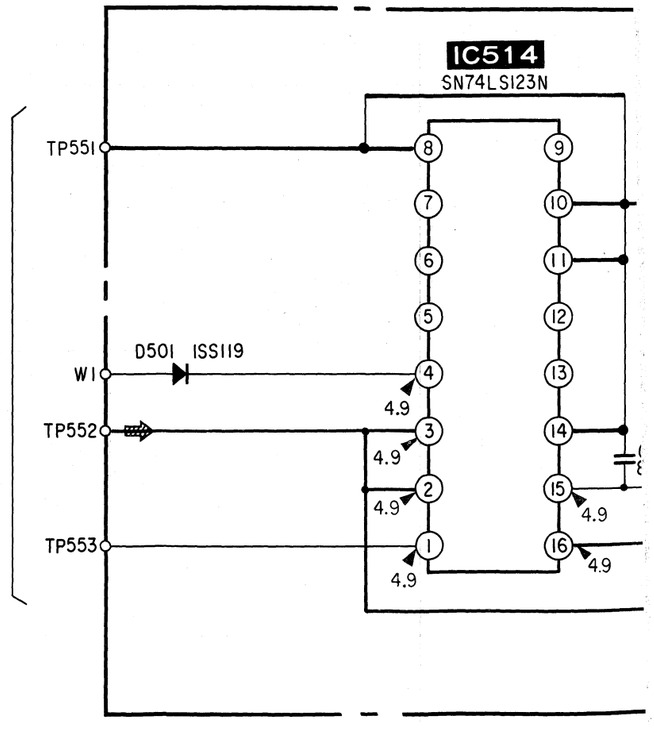
### VD-13 BOARD (CONDUCTOR SIDE)





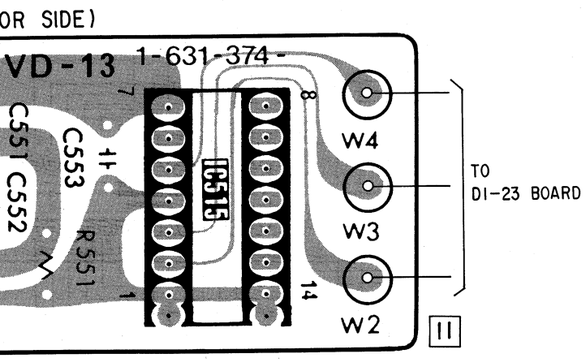

## VD-13 (MONO MULTI VIBRATOR)

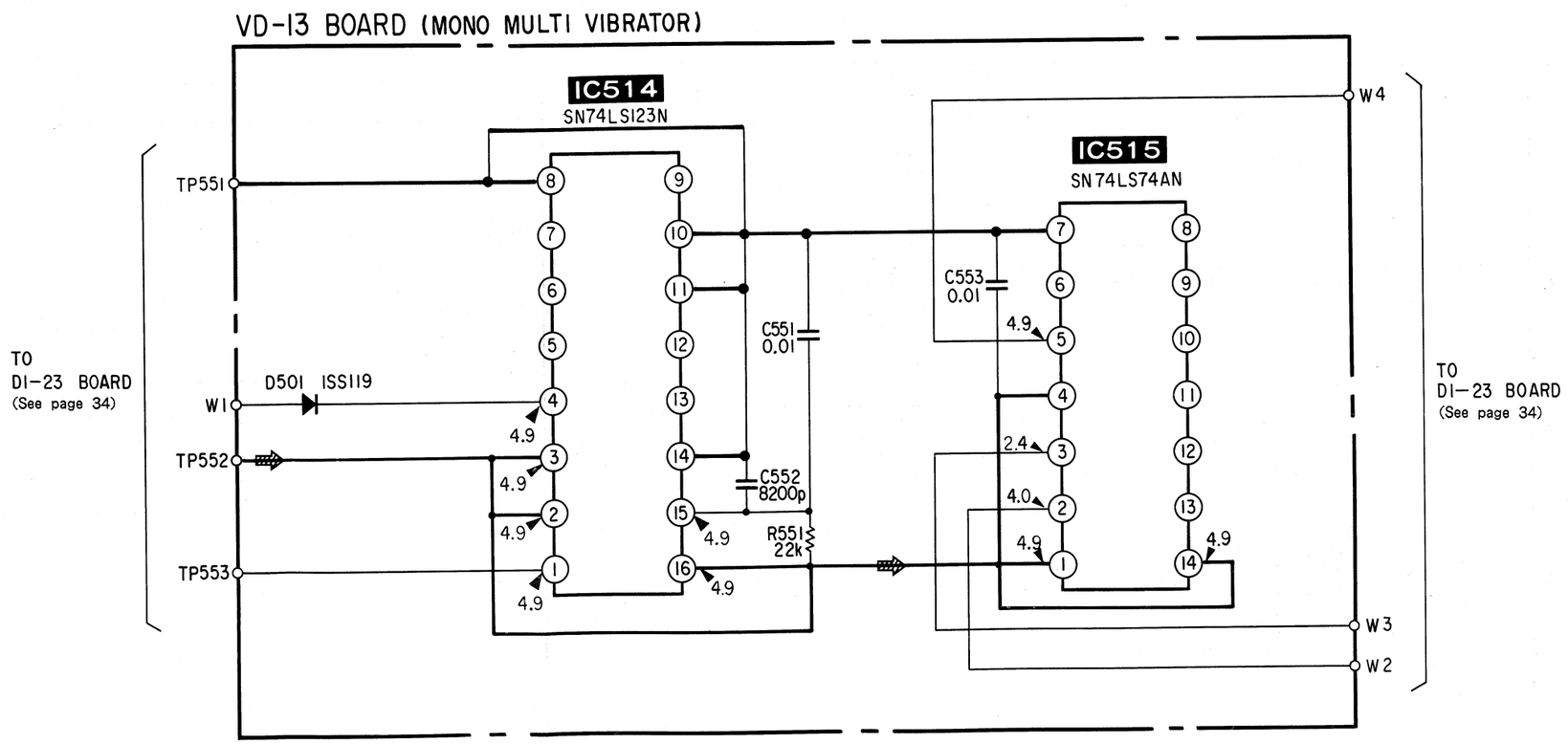
### VD-13 BOARD (MONO MULTI VIBRATOR)



# VD-13 (MONO MULTI VIBRATOR)

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

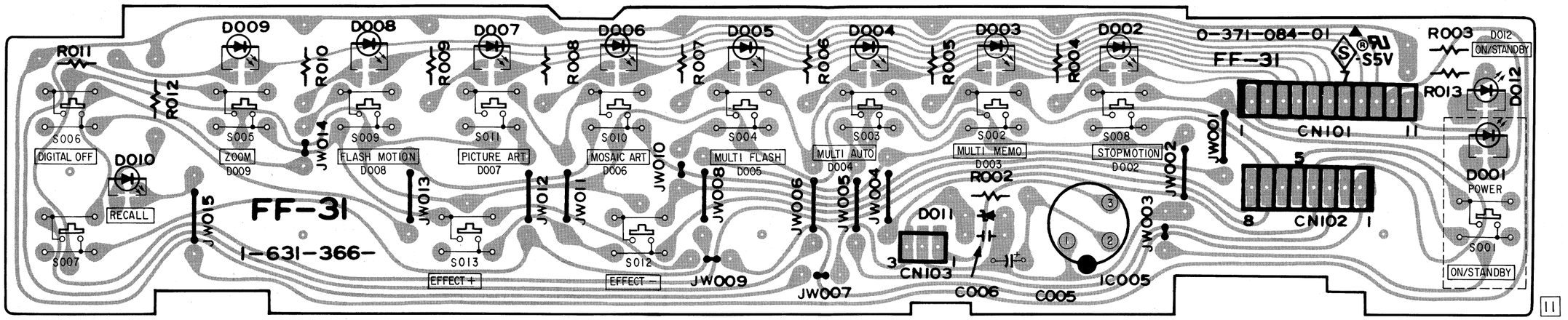



When indicating parts by reference number, please include the board name.

## FF-31 (FUNCTION SWITCH)

FF-31 BOARD (CONDUCTOR SIDE)




For printed wiring boards :

- ○— : indicates a lead wire mounted on the componet side.
- ●— : indicates a lead wire mounted on the printed side.
- ● : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.

Note :

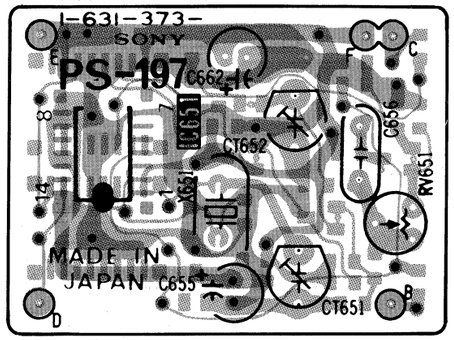
Conductor side : Parts on the conductor side being seen from the conductor are stated.

Component side : Parts on the component side being seen from the component are stated.

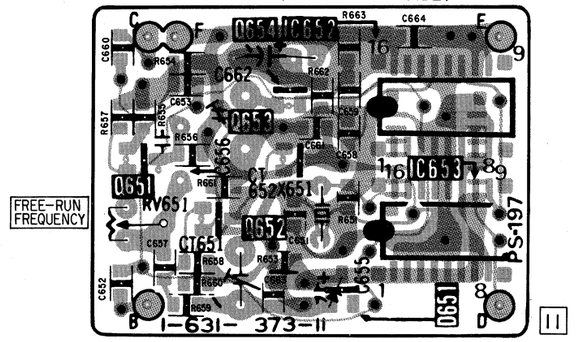
## PS-197 (PULS SEPARATOR)

See page 33–35 for Schematic Diagram.

PS-197 BOARD (COMPONENT SIDE)

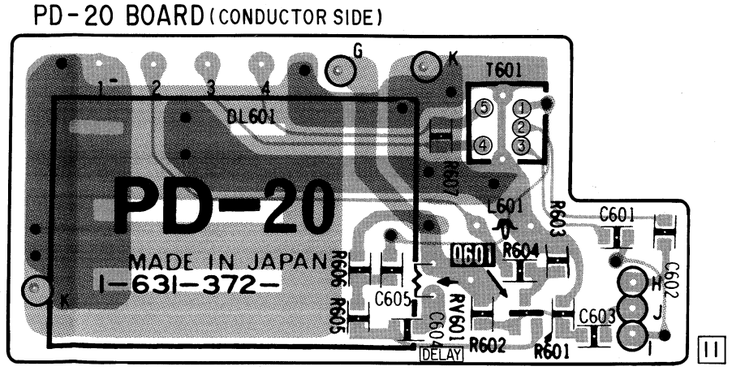



PS-197 BOARD (CONDUCTOR SIDE)



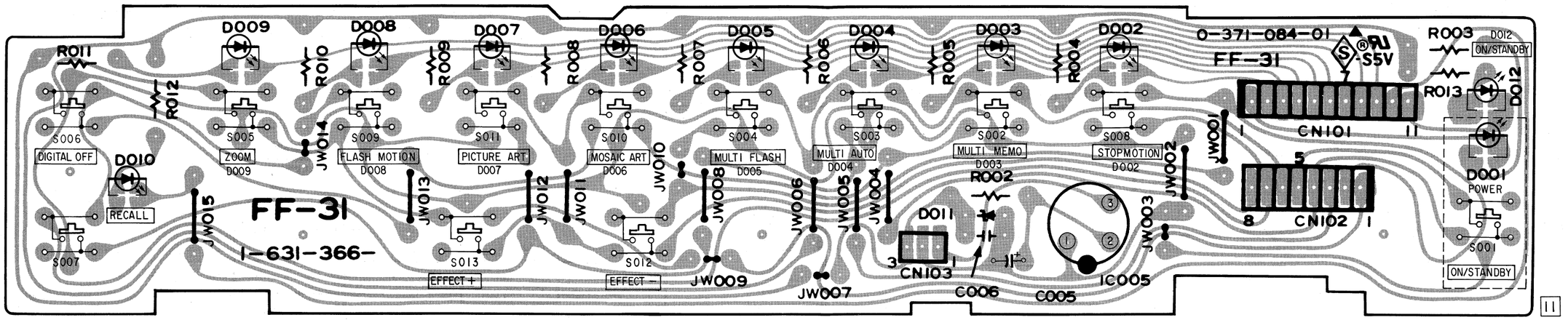

## PD-20 (PULS DRIVE)

PD-20 BOARD (CONDUCTOR SIDE)



## FF-31 (FUNCTION SWITCH)

FF-31 BOARD (CONDUCTOR SIDE)




For printed wiring boards :

- ○— : indicates a lead wire mounted on the componet side.
- ●— : indicates a lead wire mounted on the printed side.
- ● : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.

Note :

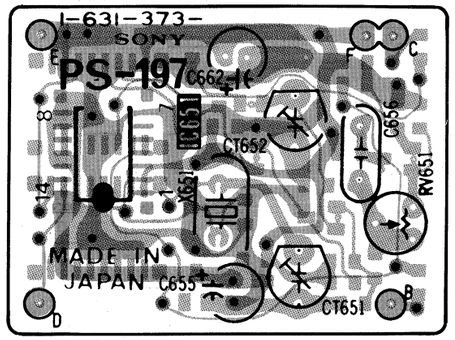
Conductor side : Parts on the conductor side being seen from the conductor are stated.

Component side : Parts on the component side being seen from the component are stated.

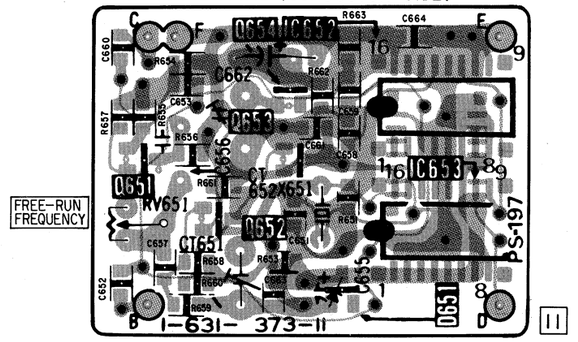
## PS-197 (PULS SEPARATOR)

See page 33—35 for Schematic Diagram.

PS-197 BOARD (COMPONENT SIDE)

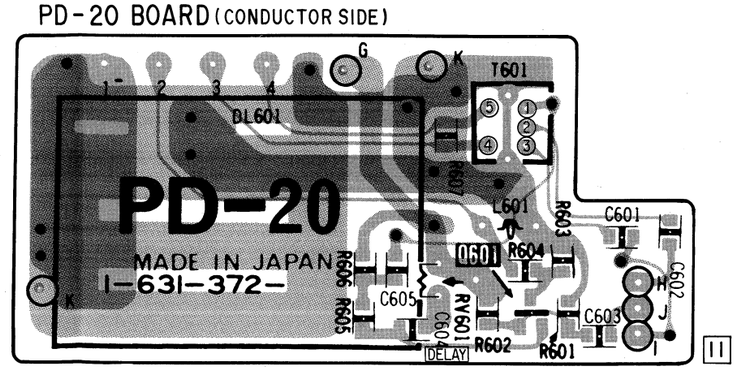



PS-197 BOARD (CONDUCTOR SIDE)



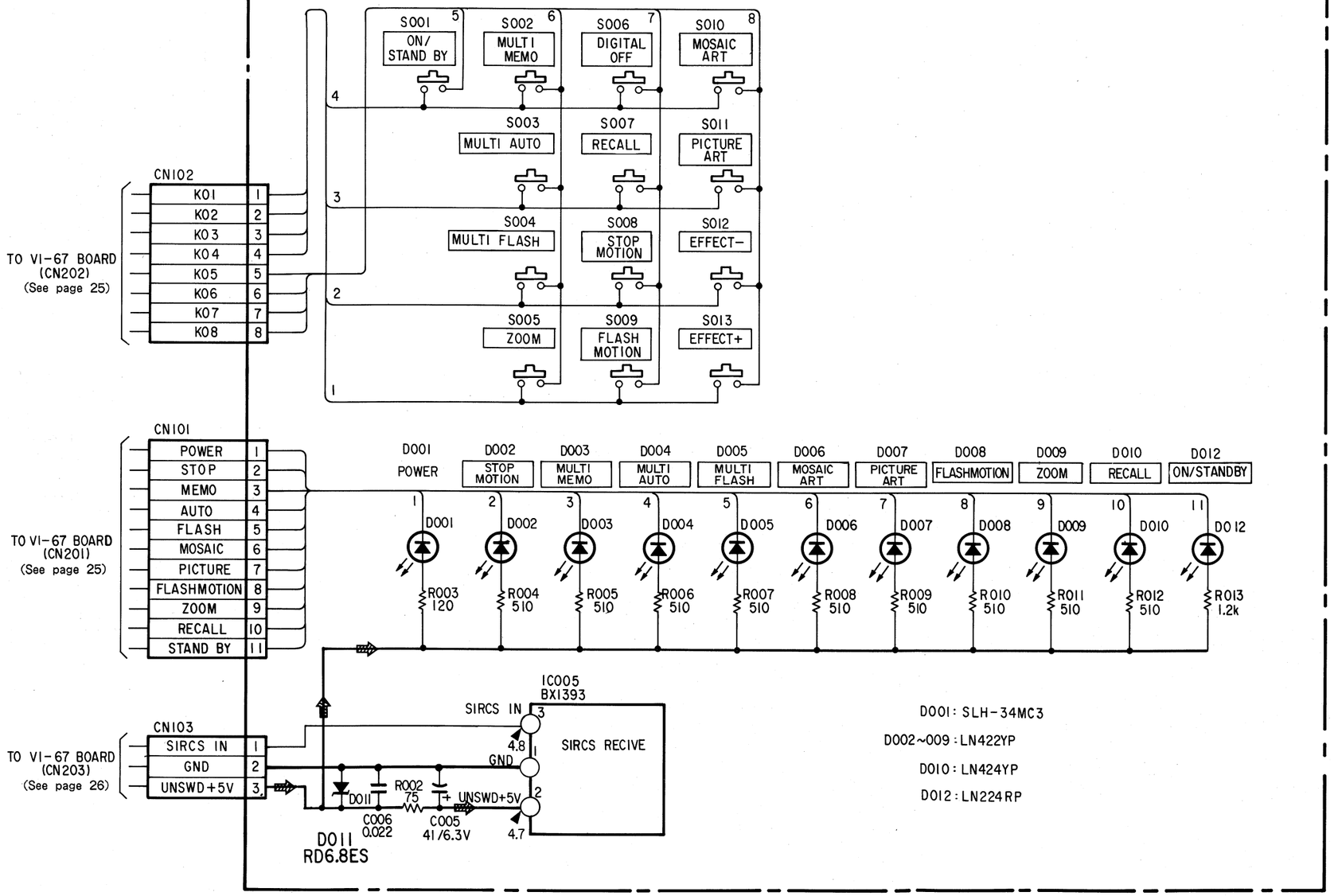

## PD-20 (PULS DRIVE)

PD-20 BOARD (CONDUCTOR SIDE)



# FF-31 (FUNCTION SWITCH)

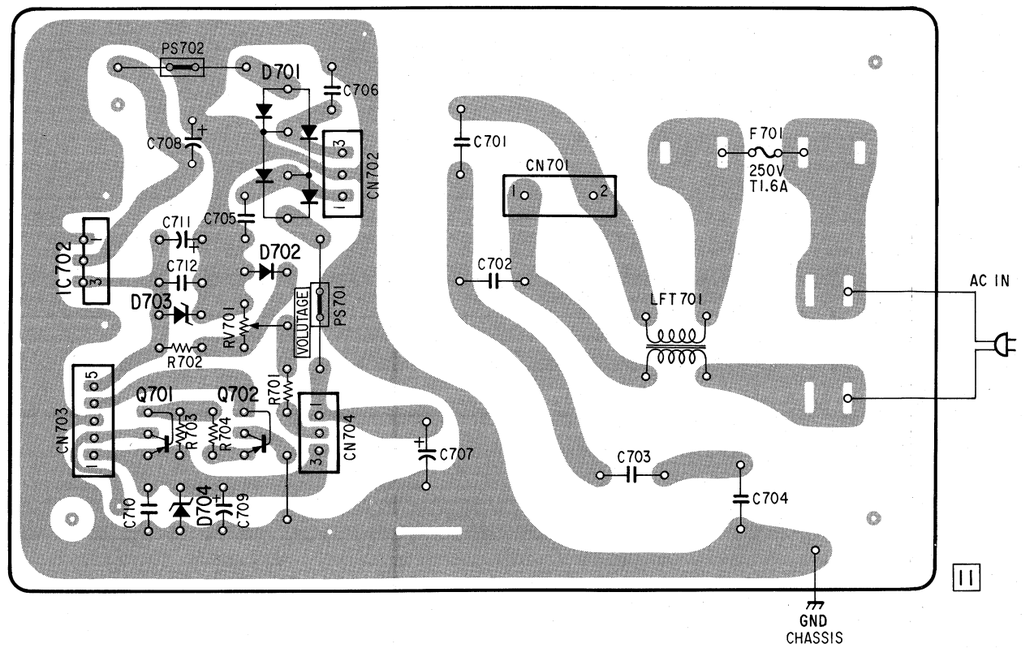
## FF-31 BOARD (FUNCTION. SWITCH, REMOTECONTROL SENSOR)




When indicating parts by reference number, please include the board name.

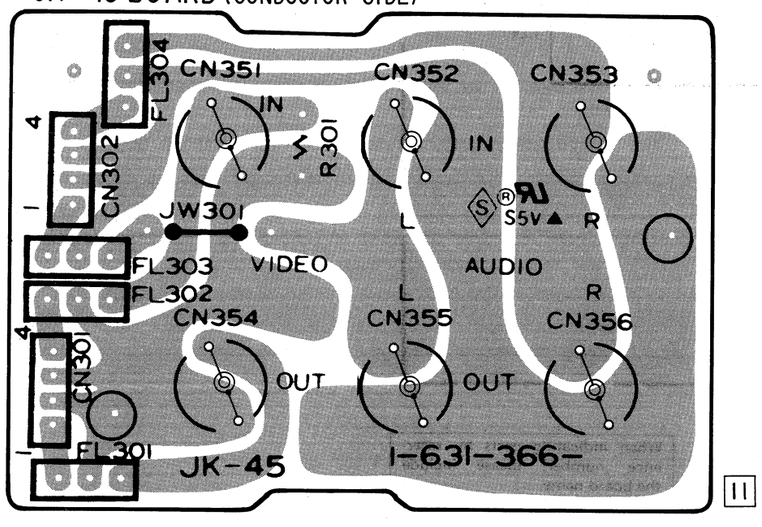
## PW-69 (POWER SUPPLY)

PW-69 BOARD (CONDUCTOR SIDE)



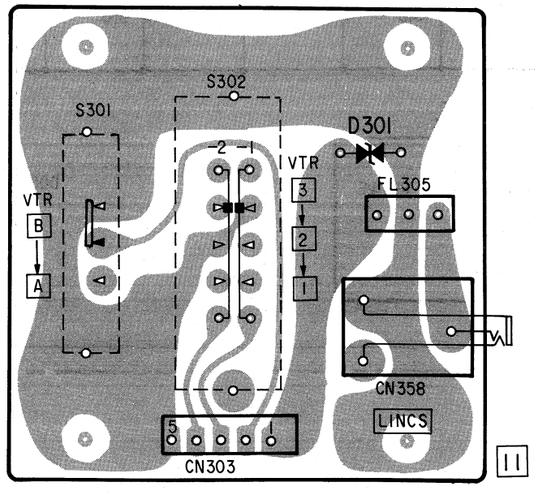

## JK-45 (PIN JACK)

JK-45 BOARD (CONDUCTOR SIDE)




## LA-08 (COMMANDO MODE)

LA-08 BOARD (CONDUCTOR SIDE)

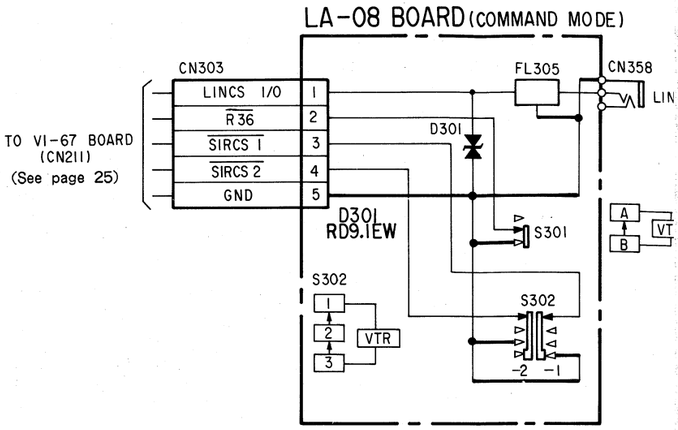




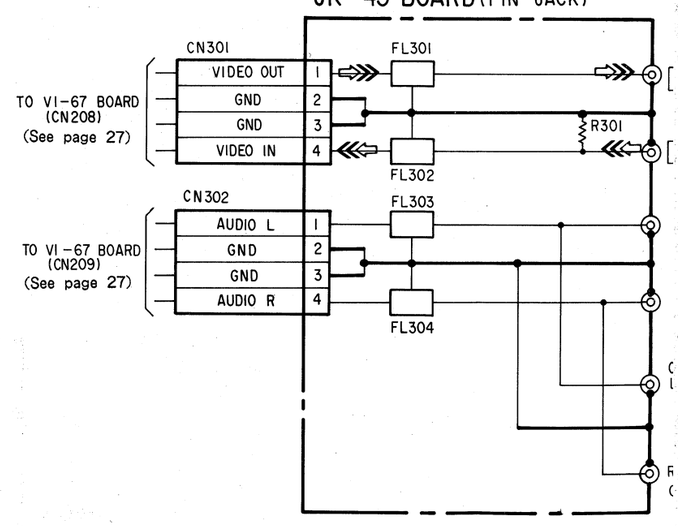



## LA-08 (COMMANDO MODE) JK-45 (PIN JACK) PW-

LA-08 BOARD (COMMAND MODE)




JK-45 BOARD (PIN JACK)

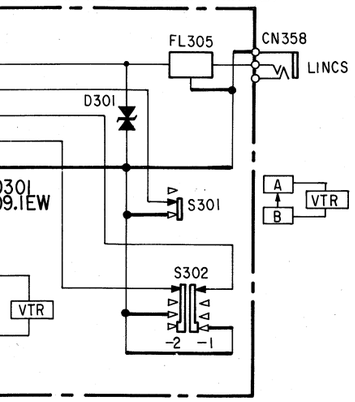



• Signal path

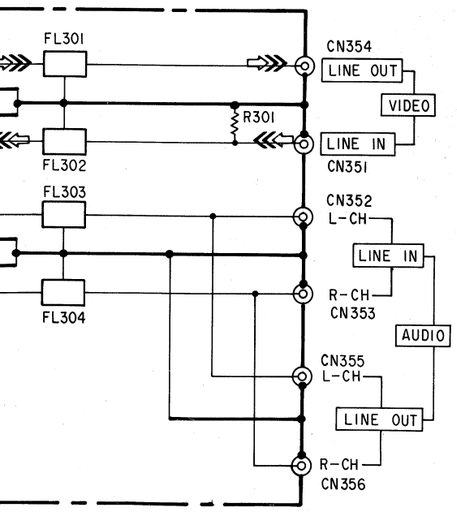
⇨ : LUMINANCE COLOR COMPOSITE SIGNAL

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

-08 BOARD (COMMAND MODE)

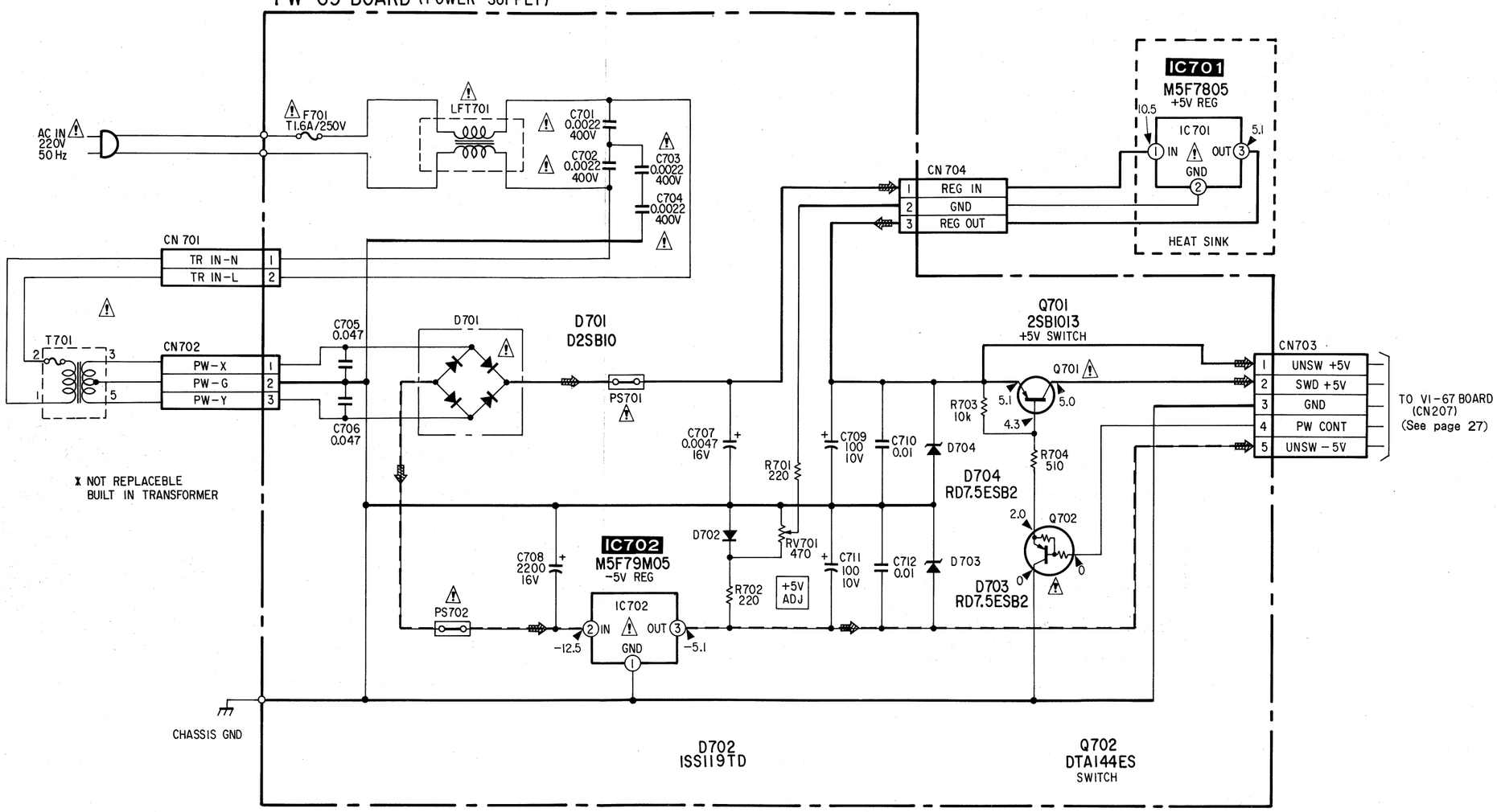



-45 BOARD (PIN JACK)




OSITE SIGNAL

PW-69 BOARD (POWER SUPPLY)



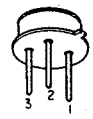

* NOT REPLACEBLE BUILT IN TRANSFORMER

When indicating parts by reference number, please include the board name.

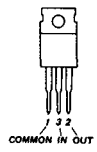
**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

## 4-3. SEMICONDUCTORS

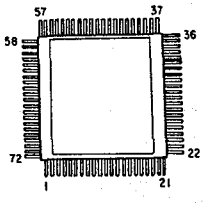
BX1393



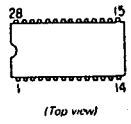

M5F79M05



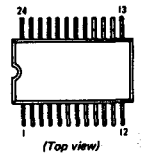

M50747-651FP



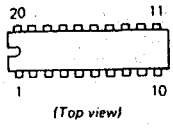

M51271FP



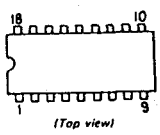

M51272FP



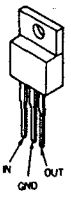

M52678P




M52679P

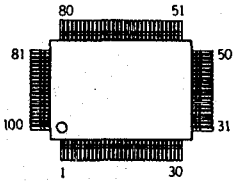



M5F7805

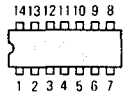



M5M4C500L-10

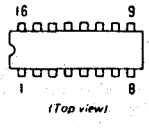
M65011FP-D



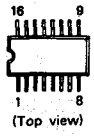

SN74ALS00AN
SN74LS05N
SN74LS74AN



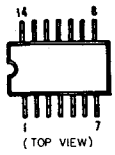

SN74LS123N
TC74HC4053AP




TC4040BF
TC4051BFHB
TC74HC4053AF

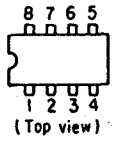



TC74HC04F

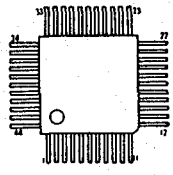



TC74HC157F

μPC4558C

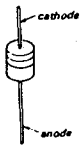



μPD7507HG-533-22

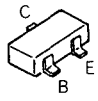


DTA144ES
DTC144ES

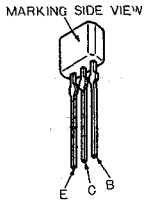
1SS133



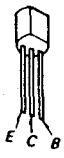

2SA1162
2SC1623-L6



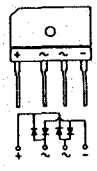

2SA1175-HFE
2SC2785-E



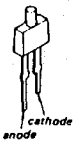

2SB1013



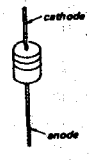

D2SB10



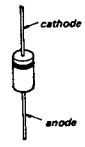
LN422YP
LN424YP



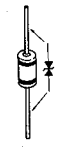

RD3.0ESB1
RD7.5ESB2
1SS119




RD6.8ESB3

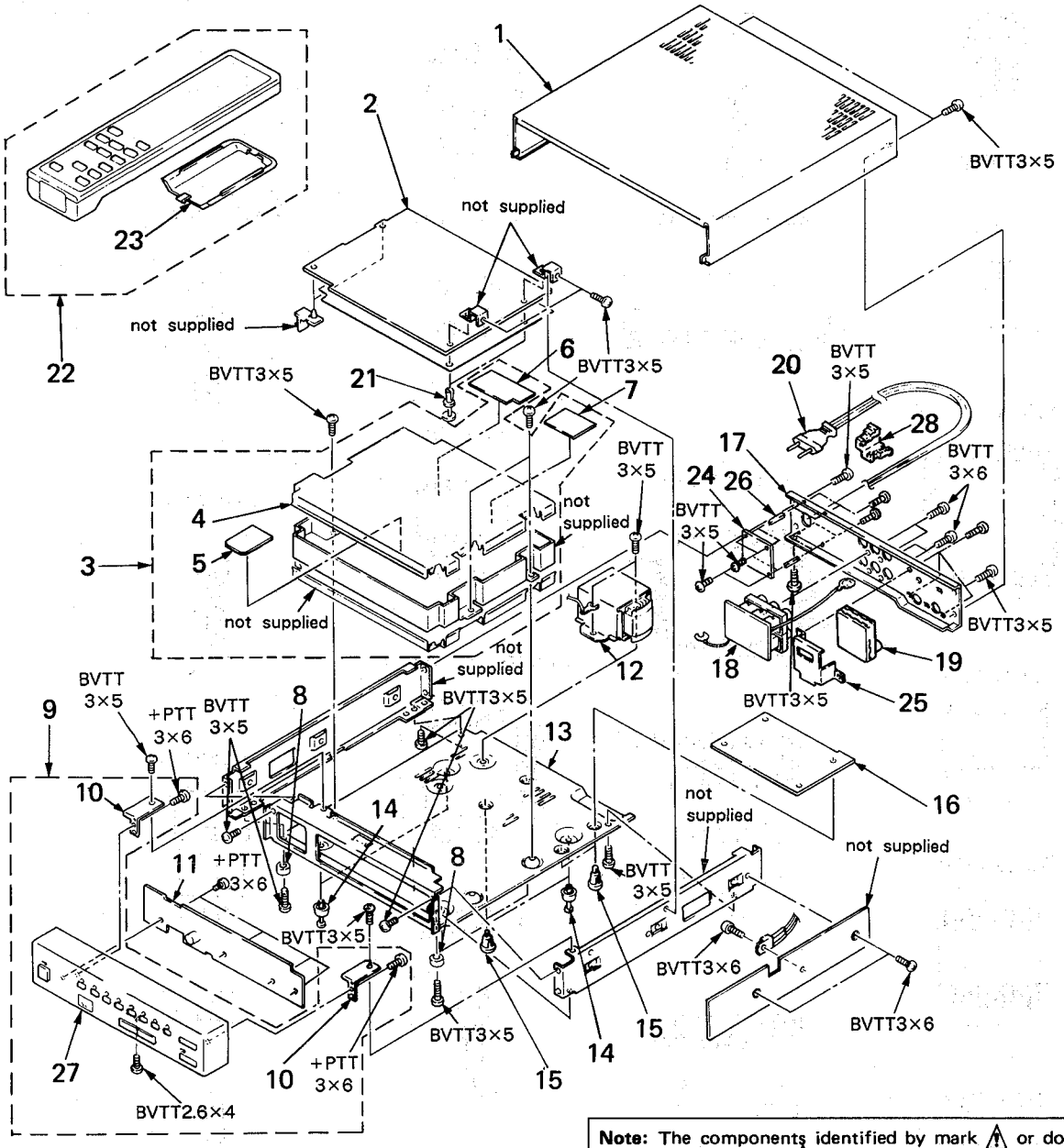



RD9.1EW



# SECTION 5
# EXPLODED VIEW

## 5-1. SHASSIS ASSEMBLY




**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

| No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | *2-363-015-41 | CASE | |
| 2 | *A-7061-681-A | VI-67 BOARD, COMPLETE | |
| 3 | *A-7061-682-A | DI-23 BOARD, COMPLETE | |
| 4 | *3-718-532-01 | LID, UPPER, DI SHIELD CASE | |
| 5 | *1-631-374-11 | VD-13 BOARD | |
| 6 | *1-631-372-11 | PD-20 BOARD | |
| 7 | *1-631-373-11 | PS-197 BOARD | |
| 8 | 2-128-409-01 | WASHER, STOPPER | |
| 9 | X-2118-220-2 | PANEL SUB BLOCK ASSY, FRONT | |
| 10 | *4-881-517-00 | BRACKET, PANEL | |
| 11 | *1-631-366-11 | FF-31 BOARD | |
| 12 | ⚠1-449-768-11 | TRANSFORMER, POWER (T701) | |
| 13 | *2-118-295-11 | CHASSIS | |
| 14 | 3-670-155-11 | LEG | |
| 15 | 4-912-181-01 | SUPPORT, PC | |
| 16 | *1-631-369-11 | PW-69 BOARD | |
| 17 | 2-113-683-01 | PANEL, REAR | |
| 18 | *1-631-367-11 | JK-45 BOARD | |
| 19 | ⚠1-464-768-11 | MODULATOR, RF (RFU-865) | |
| 20 | ⚠1-555-795-00 | CORD, POWER | |
| 21 | *2-279-715-31 | RIVET, NYLON | |
| 22 | A-6768-095-A | COMMANDER ASSY (RMT-453) | |
| 23 | 2-357-280-01 | COVER, BATTERY | |
| 24 | *1-631-368-11 | LA-08 BOARD | |
| 25 | *2-113-682-01 | BAND, RFU FITTING | |
| 26 | 2-280-622-21 | SUPPORT (M3X10), HEXAGON | |
| 27 | 2-357-277-01 | PANEL, FRONT | |
| 28 | *3-703-244-00 | BUSHING (2104), CORD | |

# SECTION 6
# ELECTRICAL PARTS LIST

VI-67

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference frome the original one.
- SEMICONDUCTORS
  In each case, U: μ, for example:
  UA....: μA...., UPA....: μPA....,
  UPB....: μPB...., UPC....: μPC....,
  UPD....: μPD....
- CAPACITORS
  MF: μF, PF: μμF
- COILS
  MMH: mH, UH: μH

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *A-7061-681-A | VI-67 BOARD, COMPLETE ********** | | | |
| | | CAPACITOR | | | |
| C101 | 1-126-154-11 | ELECT | 47MF | 20% | 6.3V |
| C102 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| C103 | 1-101-006-00 | CERAMIC | 0.047MF | | 50V |
| C104 | 1-102-962-00 | CERAMIC | 30PF | 5% | 50V |
| C105 | 1-102-962-00 | CERAMIC | 30PF | 5% | 50V |
| C106 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| C107 | 1-126-154-11 | ELECT | 47MF | 20% | 6.3V |
| C108 | 1-126-154-11 | ELECT | 47MF | 20% | 6.3V |
| C109 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| C110 | 1-102-962-00 | CERAMIC | 30PF | 5% | 50V |
| C111 | 1-102-962-00 | CERAMIC | 30PF | 5% | 50V |
| C112 | 1-126-154-11 | ELECT | 47MF | 20% | 6.3V |
| C113 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| C114 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C115 | 1-101-361-00 | CERAMIC | 150PF | 5% | 50V |
| C201 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C202 | 1-124-589-11 | ELECT | 47MF | 20% | 10V |
| C203 | 1-124-589-11 | ELECT | 47MF | 20% | 10V |
| C204 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C205 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C206 | 1-124-638-11 | ELECT | 22MF | 20% | 10V |
| C207 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C208 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C209 | 1-124-229-00 | ELECT | 33MF | 20% | 10V |
| C210 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C211 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C212 | 1-124-589-11 | ELECT | 47MF | 20% | 10V |
| C213 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C214 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C215 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C216 | 1-124-638-11 | ELECT | 22MF | 20% | 10V |
| C217 | 1-124-638-11 | ELECT | 22MF | 20% | 10V |
| C218 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C219 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C220 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C221 | 1-124-443-00 | ELECT | 100MF | 20% | 10V |
| C222 | 1-124-443-00 | ELECT | 100MF | 20% | 10V |
| C223 | 1-124-472-11 | ELECT | 470MF | 20% | 6.3V |
| C224 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C225 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C226 | 1-124-589-11 | ELECT | 47MF | 20% | 10V |
| C227 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C228 | 1-124-589-11 | ELECT | 47MF | 20% | 10V |
| C229 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C230 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C231 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C232 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C233 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C234 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C235 | 1-124-638-11 | ELECT | 22MF | 20% | 10V |
| C236 | 1-124-638-11 | ELECT | 22MF | 20% | 10V |
| C237 | 1-124-638-11 | ELECT | 22MF | 20% | 10V |
| C238 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C239 | 1-102-123-00 | CERAMIC | 0.0033MF | 10% | 50V |
| C240 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C241 | 1-161-061-11 | CERAMIC | 0.068MF | 10% | 25V |
| C242 | 1-124-438-00 | ELECT | 1MF | | 50V |
| C243 | 1-126-163-11 | ELECT | 4.7MF | 20% | 50V |
| C244 | 1-102-973-00 | CERAMIC | 100PF | 10% | 50V |
| C245 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C246 | 1-102-074-00 | CERAMIC | 0.001MF | 10% | 50V |
| C247 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C248 | 1-102-123-00 | CERAMIC | 0.0033MF | 10% | 50V |
| C249 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C250 | 1-124-229-00 | ELECT | 33MF | 20% | 10V |
| C251 | 1-161-061-11 | CERAMIC | 0.068MF | 10% | 25V |
| C252 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C253 | 1-102-121-00 | CERAMIC | 0.0022MF | 20% | 50V |
| C255 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C256 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C257 | 1-161-061-11 | CERAMIC | 68PF | 10% | 25V |
| | | DIODE | | | |
| D101 | 8-719-108-12 | DIODE RD9.1EW | | | |
| D102 | 8-719-108-12 | DIODE RD9.1EW | | | |
| D103 | 8-719-109-98 | DIODE RD6.8ESB3 | | | |
| D104 | 8-719-911-19 | DIODE 1SS119 | | | |
| D105 | 8-719-911-19 | DIODE 1SS119 | | | |
| D106 | 8-719-108-12 | DIODE RD9.1EW | | | |
| | | DELAY LINE | | | |
| DL201 | 1-415-440-11 | DELAY LINE | | | |
| | | FILTER | | | |
| FL201 | 1-235-448-11 | FILTER, LOW PASS | | | |
| FL202 | 1-235-437-11 | BPF, PB C | | | |
| FL251 | 1-421-928-11 | FILTER, NOISE | | | |
| FL252 | 1-421-928-11 | FILTER, NOISE | | | |
| FL253 | 1-421-928-11 | FILTER, NOISE | | | |
| FL254 | 1-421-928-11 | FILTER, NOISE | | | |
| FL255 | 1-421-928-11 | FILTER, NOISE | | | |
| FL256 | 1-421-928-11 | FILTER, NOISE | | | |
| FL257 | 1-421-928-11 | FILTER, NOISE | | | |
| FL258 | 1-421-928-11 | FILTER, NOISE | | | |
| FL259 | 1-421-928-11 | FILTER, NOISE | | | |
| FL260 | 1-421-928-11 | FILTER, NOISE | | | |
| FL261 | 1-421-928-11 | FILTER, NOISE | | | |
| | | IC | | | |
| IC101 | 8-759-146-78 | IC UPD750P108G | | | |
| IC102 | 8-759-904-18 | IC SN74ALS00AN | | | |

# VI-67

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| IC103 | 8-759-143-22 | IC UPD7507HG-533-22 | |
| IC104 | 8-759-146-79 | IC UPD7564 | |
| IC201 | 8-759-145-58 | IC UPC4558C | |
| IC202 | 8-759-231-66 | IC TC74HC4053AP | |
| IC203 | 8-759-711-16 | IC NJM2229S | |
| IC204 | 8-759-901-23 | IC SN74LS123N | |
| IC205 | 8-759-900-74 | IC SN74LS74AN | |
| IC206 | 8-759-900-05 | IC SN74LS05N | |
| | | COIL | |
| L101 | 1-408-421-00 | INDUCTOR 100UH | |
| L201 | 1-408-421-00 | INDUCTOR 100UH | |
| | | TRANSISTOR | |
| Q101 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q102 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q103 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q104 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q201 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q202 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q203 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q204 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q205 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q206 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q207 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q208 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q209 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q210 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q211 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q212 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q213 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q214 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q215 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q216 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q217 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q218 | 8-729-900-80 | TRANSISTOR DTC114ES | |
| Q219 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q221 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q222 | 8-729-900-65 | TRANSISTOR DTA144ES | |
| | | RESISTOR | |
| R100 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R101 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R102 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R103 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R104 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R105 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R106 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R107 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R108 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R109 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R110 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R111 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R112 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R113 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R114 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R115 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R116 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R117 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R118 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R119 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R120 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R201 | 1-247-804-11 | CARBON 75 5% 1/4W | |
| R202 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R203 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R204 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R205 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R206 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R207 | 1-249-436-11 | CARBON 39K 5% 1/4W | |
| R208 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R209 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R210 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R211 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R212 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R213 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R214 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R215 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R216 | 1-249-434-11 | CARBON 27K 5% 1/4W | |
| R217 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R218 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R219 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R220 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R221 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R222 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R223 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R224 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R225 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R226 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R227 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R228 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R229 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R230 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R231 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R232 | 1-249-430-11 | CARBON 12K 5% 1/4W | |
| R233 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R234 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R235 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R236 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R237 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R238 | 1-247-903-00 | CARBON 1M 5% 1/4W | |
| R239 | 1-249-410-11 | CARBON 270 5% 1/4W | |
| R240 | 1-249-418-11 | CARBON 1.2K 5% 1/4W | |
| R241 | 1-249-416-11 | CARBON 820 5% 1/4W | |
| R242 | 1-247-804-11 | CARBON 75 5% 1/4W | |
| R243 | 1-247-903-00 | CARBON 1M 5% 1/4W | |
| R244 | 1-247-903-00 | CARBON 1M 5% 1/4W | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R245 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R246 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R247 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R248 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R249 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R250 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R251 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W | |
| R252 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R253 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W | |
| R254 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R255 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R256 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R257 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R258 | 1-249-438-11 | CARBON | 56K | 5% | 1/4W | |
| R259 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R260 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R261 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R262 | 1-249-412-11 | CARBON | 390 | 5% | 1/4W | |
| R263 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R264 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R265 | 1-247-899-11 | CARBON | 680K | 5% | 1/4W | |
| R266 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R267 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R268 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R269 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R270 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R271 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R272 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R273 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R274 | 1-247-889-00 | CARBON | 270K | 5% | 1/4W | |
| R275 | 1-247-889-00 | CARBON | 270K | 5% | 1/4W | |
| R276 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R277 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R278 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R279 | 1-247-881-00 | CARBON | 120K | 5% | 1/4W | |
| R280 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |

VARIABLE RESISTOR

| | | |
|---|---|---|
| RV201 | 1-228-518-00 | RES, ADJ, METAL GLAZE 1K |
| RV202 | 1-228-518-00 | RES, ADJ, METAL GLAZE 1K |
| RV203 | 1-228-996-00 | RES, ADJ, METAL GLAZE 47K |
| RV204 | 1-228-518-00 | RES, ADJ, METAL GLAZE 1K |

CRYSTAL

| | | |
|---|---|---|
| X101 | 1-567-160-00 | OSCILLATOR, CERAMIC (4.19MHz) |
| X102 | 1-567-160-00 | OSCILLATOR, CERAMIC (4.19MHz) |
| X103 | 1-567-884-11 | OSCILLATOR, CERAMIC (700KHz) |
| X201 | 1-567-931-11 | OSCILLATOR, CRYSTAL (500KHz) |

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| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | *A-7061-682-A | DI-23 BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| | 2-113-688-01 | SPACER, RUBBER | | | | |
| | *3-718-532-01 | LID, UPPER, DI SHIELD CASE | | | | |

CAPACITOR

| | | | | | |
|---|---|---|---|---|---|
| C401 | 1-130-471-00 | MYLAR | 0.001MF | 5% | 50V |
| C403 | 1-102-129-00 | CERAMIC | 0.01MF | 10% | 50V |
| C404 | 1-102-129-00 | CERAMIC | 0.01MF | 10% | 50V |
| C405 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C406 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C407 | 1-126-154-11 | ELECT | 47MF | 20% | 6.3V |
| C408 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C409 | 1-130-483-00 | MYLAR | 0.01MF | 5% | 50V |
| C410 | 1-102-115-00 | CERAMIC | 560PF | 10% | 50V |
| C411 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C412 | 1-102-945-00 | CERAMIC | 8PF | 1PF | 50V |
| C415 | 1-124-471-00 | ELECT | 1000MF | 20% | 6.3V |
| C416 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C417 | 1-130-479-00 | MYLAR | 0.0047MF | 5% | 50V |
| C418 | 1-130-491-00 | MYLAR | 0.047MF | 5% | 50V |
| C419 | 1-124-465-00 | ELECT | 0.47MF | 20% | 50V |
| C420 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C421 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C422 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C423 | 1-130-471-00 | MYLAR | 0.001MF | 5% | 50V |
| C424 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C425 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C451 | 1-102-963-00 | CERAMIC | 33PF | 10% | 50V |
| C452 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C453 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C454 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C455 | 1-101-361-00 | CERAMIC | 150PF | 10% | 50V |
| C456 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C457 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C458 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C459 | 1-130-491-00 | MYLAR | 0.047MF | 5% | 50V |
| C460 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C461 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C462 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C463 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C464 | 1-130-491-00 | MYLAR | 0.047MF | 5% | 50V |
| C465 | 1-102-949-00 | CERAMIC | 12PF | 10% | 50V |
| C466 | 1-124-472-11 | ELECT | 470MF | 20% | 6.3V |
| C467 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C468 | 1-102-953-00 | CERAMIC | 18PF | 10% | 50V |
| C469 | 1-102-945-00 | CERAMIC | 8PF | 1PF | 50V |
| C470 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C471 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C472 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C473 | 1-130-491-00 | MYLAR | 0.047MF | 5% | 50V |
| C474 | 1-102-949-00 | CERAMIC | 12PF | 10% | 50V |

When indicating parts by reference number, please include the board name.

# DI-23

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C475 | 1-102-129-00 | CERAMIC | 0.01MF | 10% | 50V |
| C476 | 1-102-947-00 | CERAMIC | 10PF | 1PF | 50V |
| C501 | 1-124-589-11 | ELECT | 47MF | 20% | 10V |
| C502 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C503 | 1-102-129-00 | CERAMIC | 0.01MF | 10% | 50V |
| C504 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C505 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C506 | 1-124-471-00 | ELECT | 1000MF | 20% | 6.3V |
| C507 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C508 | 1-102-963-00 | CERAMIC | 33PF | 10% | 50V |
| C509 | 1-102-963-00 | CERAMIC | 33PF | 10% | 50V |
| C510 | 1-102-947-00 | CERAMIC | 10PF | 1PF | 50V |
| C511 | 1-102-947-00 | CERAMIC | 10PF | 1PF | 50V |
| C512 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| C514 | 1-161-772-11 | CERAMIC | 0.1MF | 10% | 25V |
| C516 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C517 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C518 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C519 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C520 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C521 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C522 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C523 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C524 | 1-130-467-00 | MYLAR | 470PF | 5% | 50V |
| C525 | 1-136-169-00 | MYLAR | 0.22MF | 10% | 50V |
| C526 | 1-130-479-00 | MYLAR | 0.0047MF | 5% | 50V |
| C527 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C528 | 1-102-129-00 | CERAMIC | 0.01MF | 10% | 50V |
| C529 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C530 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C531 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C532 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C533 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C534 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C535 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C536 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C537 | 1-130-491-00 | MYLAR | 0.047MF | 5% | 50V |
| C538 | 1-126-157-11 | ELECT | 10MF | 20% | 16V |
| C539 | 1-130-467-00 | MYLAR | 470PF | 5% | 50V |
| C540 | 1-101-983-51 | CERAMIC | 47PF | 5% | 50V |
| C541 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C542 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C543 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C544 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C545 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C546 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C547 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C548 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C549 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C550 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C551 | 1-130-482-00 | MYLAR | 0.0082MF | 5% | 50V |
| C552 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C553 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C554 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C555 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |
| C556 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C557 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| C558 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C559 | 1-102-129-00 | CERAMIC | 0.01MF | 10% | 50V |
| C560 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C561 | 1-161-021-11 | CERAMIC | 0.047MF | 10% | 25V |
| C562 | 1-126-177-11 | ELECT | 100MF | 20% | 6.3V |
| C563 | 1-161-772-11 | CERAMIC | 0.1MF | 10% | 25V |
| C564 | 1-124-589-11 | ELECT | 47MF | 20% | 16V |
| C565 | 1-161-772-11 | CERAMIC | 0.1MF | 10% | 25V |
| C566 | 1-161-772-11 | CERAMIC | 0.1MF | 10% | 25V |
| C567 | 1-124-471-00 | ELECT | 1000MF | 20% | 6.3V |
| C568 | 1-101-004-00 | CERAMIC | 0.01MF | | 50V |

## TRIMMER

| | | |
|---|---|---|
| CT401 | 1-236-515-11 | CAP, VAR, TRIMMER |

## DIODE

| | | |
|---|---|---|
| D501 | 8-719-911-19 | DIODE 1SS119 |
| D503 | 8-719-911-19 | DIODE 1SS119 |
| D504 | 8-719-911-19 | DIODE 1SS119 |

## DELAY LINE

| | | |
|---|---|---|
| DL451 | 1-415-440-11 | DELAY, LINE |
| DL452 | 1-415-440-11 | DELAY, LINE |

## FERRITE BEAD INDUCTOR

| | | |
|---|---|---|
| FB501 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB502 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB503 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB504 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB505 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB506 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB507 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB508 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB509 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB510 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB511 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB512 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB513 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB514 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB515 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB516 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB517 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB518 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB519 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB520 | 1-410-397-21 | FERRITE BEAD INDUCTOR |
| FB521 | 1-410-397-21 | FERRITE BEAD INDUCTOR |

When indicating parts by reference number, please include the board name.

DI-23

| Ref.No | Part No. | Description | Remark |
|---|---|---|---|
| | | FILTER | |
| FL401 | 1-236-055-11 | FILTER, LC (LOW PASS) | |
| FL402 | 1-236-055-11 | FILTER, LC (LOW PASS) | |
| FL403 | 1-421-927-11 | FILTER, NOISE | |
| FL451 | 1-236-515-11 | BPF | |
| FL501 | 1-421-927-11 | FILTER, NOISE | |
| FL502 | 1-421-928-11 | FILTER, NOISE | |
| FL503 | 1-421-928-11 | FILTER, NOISE | |
| FL504 | 1-421-928-11 | FILTER, NOISE | |
| FL505 | 1-421-928-11 | FILTER, NOISE | |
| FL506 | 1-421-928-11 | FILTER, NOISE | |
| FL507 | 1-421-927-11 | FILTER, NOISE | |
| FL508 | 1-421-928-11 | FILTER, NOISE | |
| FL509 | 1-421-927-11 | FILTER, NOISE | |
| FL510 | 1-421-927-11 | FILTER, NOISE | |
| FL511 | 1-421-927-11 | FILTER, NOISE | |
| FL512 | 1-421-927-11 | FILTER, NOISE | |
| FL513 | 1-421-927-11 | FILTER, NOISE | |
| FL514 | 1-421-927-11 | FILTER, NOISE | |
| FL515 | 1-421-927-11 | FILTER, NOISE | |
| FL516 | 1-421-927-11 | FILTER, NOISE | |
| FL517 | 1-421-927-11 | FILTER, NOISE | |
| FL518 | 1-421-927-11 | FILTER, NOISE | |
| FL519 | 1-421-927-11 | FILTER, NOISE | |
| FL520 | 1-421-928-11 | FILTER, NOISE | |
| FL521 | 1-421-928-11 | FILTER, NOISE | |
| FL522 | 1-421-928-11 | FILTER, NOISE | |
| FL523 | 1-421-928-11 | FILTER, NOISE | |
| FL524 | 1-421-928-11 | FILTER, NOISE | |
| FL525 | 1-421-928-11 | FILTER, NOISE | |
| FL526 | 1-421-928-11 | FILTER, NOISE | |
| | | IC | |
| IC401 | 8-759-603-54 | IC M51271FP | |
| IC402 | 8-759-230-99 | IC TC74HC4053AF | |
| IC451 | 8-759-603-56 | IC M51272FP | |
| IC501 | 1-808-110-11 | HIC HGA0801 | |
| IC502 | 8-759-205-12 | IC TC74HC157F | |
| IC503 | 8-759-205-12 | IC TC74HC157F | |
| IC504 | 8-759-630-77 | IC M50747-651FP | |
| IC505 | 8-759-630-56 | IC M65011FP-D | |
| IC506 | 8-759-605-14 | IC M52678P | |
| IC507 | 8-759-605-14 | IC M52678P | |
| IC508 | 8-759-605-13 | IC M52679P | |
| IC509 | 8-759-605-13 | IC M52679P | |
| IC510 | 8-759-605-13 | IC M52679P | |
| IC511 | 8-759-605-15 | IC M5M4C500L-10 | |
| IC512 | 8-759-605-15 | IC M5M4C500L-10 | |
| IC513 | 8-759-605-15 | IC M5M4C500L-10 | |
| | | COIL | |
| L401 | 1-408-421-00 | INDUCTOR 100UH | |
| L402 | 1-408-421-00 | INDUCTOR 100UH | |
| L451 | 1-408-416-00 | INDUCTOR 39UH | |
| L452 | 1-408-421-00 | INDUCTOR 100UH | |
| | | TRANSISTOR | |
| Q401 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q402 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q403 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | |
| Q451 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q452 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| Q453 | 8-729-178-55 | TRANSISTOR 2SC2785-E | |
| | | RESISTOR | |
| R403 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R404 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R405 | 1-249-436-11 | CARBON 39K 5% 1/4W | |
| R406 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R407 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R408 | 1-249-405-11 | CARBON 100 5% 1/4W | |
| R409 | 1-249-403-11 | CARBON 68 5% 1/4W | |
| R410 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R411 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R412 | 1-249-436-11 | CARBON 39K 5% 1/4W | |
| R413 | 1-247-881-00 | CARBON 120K 5% 1/4W | |
| R414 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R415 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R416 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R417 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | |
| R418 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R419 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R420 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | |
| R421 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R451 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R452 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R453 | 1-249-420-11 | CARBON 1.8K 5% 1/4W | |
| R454 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R455 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R456 | 1-249-419-11 | CARBON 1.5K 5% 1/4W | |
| R457 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R458 | 1-249-414-11 | CARBON 560 5% 1/4W | |
| R459 | 1-249-414-11 | CARBON 560 5% 1/4W | |
| R460 | 1-249-419-11 | CARBON 1.5K 5% 1/4W | |
| R461 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R462 | 1-249-414-11 | CARBON 560 5% 1/4W | |
| R463 | 1-249-414-11 | CARBON 560 5% 1/4W | |
| R464 | 1-215-457-00 | METAL 33K 1% 1/6W | |
| R465 | 1-215-453-00 | METAL 22K 1% 1/6W | |
| R466 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R467 | 1-247-860-11 | CARBON 16K 5% 1/4W | |
| R468 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | |
| R469 | 1-247-844-11 | CARBON 3.6K 5% 1/4W | |
| R470 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R471 | 1-249-429-11 | CARBON 10K 5% 1/4W | |

When indicating parts by reference number, please include the board name.

# DI-23 PD-20 PS-197

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R472 | 1-215-453-00 | METAL | 22K | 1% | 1/6W | |
| R473 | 1-215-457-00 | METAL | 33K | 1% | 1/6W | |
| R474 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R475 | 1-249-416-11 | CARBON | 820 | 5% | 1/4W | |
| R476 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R501 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R502 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R503 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R504 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W | |
| R505 | 1-249-418-11 | CARBON | 1.2K | 5% | 1/4W | |
| R506 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | |
| R507 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R508 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R509 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W | |
| R510 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R511 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R512 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| | | VARIABLE RESISTOR | | | | |
| RV401 | 1-228-996-00 | RES, ADJ, CARBON 47K | | | | |
| RV402 | 1-228-996-00 | RES, ADJ, CARBON 47K | | | | |
| RV451 | 1-230-496-11 | RES, ADJ, CARBON 10K | | | | |
| RV452 | 1-230-496-11 | RES, ADJ, CARBON 10K | | | | |
| RV453 | 1-230-496-11 | RES, ADJ, CARBON 10K | | | | |
| RV454 | 1-230-496-11 | RES, ADJ, CARBON 10K | | | | |
| | | CRYSTAL | | | | |
| X401 | 1-567-733-11 | VIBRATOR, CRYSTAL (17.73MHz) | | | | |
| X501 | 1-567-132-00 | VIBLATOR, CERAMIC (8MHz) | | | | |
| X502 | 1-567-718-11 | OSCILLATOR, CRYSTAL (20MHz) | | | | |

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*1-631-372-11 PD-20 BOARD
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| | | | | | | |
|---|---|---|---|---|---|---|
| | | CAPACITOR | | | | |
| C601 | 1-163-141-00 | CERAMIC CHIP | 0.001MF | 5% | 50V | |
| C602 | 1-163-141-00 | CERAMIC CHIP | 0.001MF | 5% | 50V | |
| C603 | 1-163-141-00 | CERAMIC CHIP | 0.001MF | 5% | 50V | |
| C604 | 1-163-021-00 | CERAMIC CHIP | 0.01MF | | 50V | |
| C605 | 1-161-039-00 | CERAMIC | 1000P | | | |
| | | DELAY LINE | | | | |
| DL601 | 1-415-122-91 | DELAY LINE, 1H (PAL) | | | | |
| | | COIL | | | | |
| L601 | 1-410-327-41 | INDUCTOR | 8.2UH | | | |
| | | TRANSISTOR | | | | |
| Q601 | 8-729-216-22 | TRANSISTOR 2SA1162 | | | | |

| Ref.No | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | RESISTOR | | | | |
| R601 | 1-216-089-00 | METAL GLAZE | 47K | 5% | 1/10W | |
| R602 | 1-216-085-00 | METAL GLAZE | 33K | 5% | 1/10W | |
| R603 | 1-216-039-00 | METAL GLAZE | 390 | 5% | 1/10W | |
| R604 | 1-216-039-00 | METAL GLAZE | 390 | 5% | 1/10W | |
| R605 | 1-216-025-00 | METAL GLAZE | 100 | 5% | 1/10W | |
| R606 | 1-216-025-00 | METAL GLAZE | 100 | 5% | 1/10W | |
| R607 | 1-216-039-00 | METAL GLAZE | 390 | 5% | 1/10W | |
| | | VARIABLE RESISTOR | | | | |
| RV601 | 1-230-530-11 | RES, ADJ, METAL GLAZE 100 | | | | |
| | | TRANSFORMER | | | | |
| T601 | 1-415-651-11 | COIL (DELAY ADJUSTMENT) | | | | |

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*1-631-373-11 PS-197 BOARD
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| | | | | | | |
|---|---|---|---|---|---|---|
| | | CAPACITOR | | | | |
| C651 | 1-102-953-00 | CERAMIC | 18PF | | | |
| C652 | 1-161-039-00 | CERAMIC | 0.001 | | | |
| C653 | 1-161-039-00 | CERAMIC | 0.001 | | | |
| C655 | 1-124-234-00 | ELECT | 22 | | 16V | |
| C656 | 1-107-077-00 | MICA | 47PF | 5% | 50V | |
| C657 | 1-161-039-00 | CERAMIC | 0.001 | | | |
| C658 | 1-616-772-11 | CERAMIC | 0.1 | | | |
| C659 | 1-616-772-11 | CERAMIC | 0.1 | | | |
| C660 | 1-130-471-00 | CERAMIC | 0.001 | | | |
| C661 | 1-101-004-00 | CERAMIC | 0.01 | | | |
| C662 | 1-124-234-00 | ELECT | 22 | | 16V | |
| C663 | 1-163-021-00 | CERAMIC CHIP | 0.01MF | | 50V | |
| C664 | 1-163-021-00 | CERAMIC CHIP | 0.01MF | | 50V | |
| | | TRIMMER | | | | |
| CT651 | 1-141-245-00 | TRIMMER, CERAMIC (30P) | | | | |
| CT652 | 1-141-245-00 | TRIMMER, CERAMIC (30P) | | | | |
| | | DIODE | | | | |
| D651 | 8-719-109-62 | DIODE RD3.0ESB1 | | | | |
| | | IC | | | | |
| IC651 | 8-759-204-96 | IC TC74HC04F | | | | |
| IC652 | 8-759-208-07 | IC TC4051BFHB | | | | |
| IC653 | 8-759-205-47 | IC TC4040BF | | | | |
| | | TRANSISTOR | | | | |
| Q651 | 8-729-100-66 | TRANSISTOR 2SC1623-L6 | | | | |
| Q652 | 8-729-100-66 | TRANSISTOR 2SC1623-L6 | | | | |
| Q653 | 8-729-100-66 | TRANSISTOR 2SC1623-L6 | | | | |
| Q654 | 8-729-216-22 | TRANSISTOR 2SA1162 | | | | |

When indicating parts by reference number, please include the board name.

# PS-197 VD-13 PW-69

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | RESISTOR | | | |
| R651 | 1-216-121-00 | METAL GLAZE | 1M | 5% 1/10W | |
| R653 | 1-216-035-00 | METAL GLAZE | 270 | 5% 1/10W | |
| R654 | 1-216-089-00 | METAL GLAZE | 47K | 5% 1/10W | |
| R655 | 1-216-085-00 | METAL GLAZE | 33K | 5% 1/10W | |
| R656 | 1-216-037-00 | METAL GLAZE | 330 | 5% 1/10W | |
| R657 | 1-216-035-00 | METAL GLAZE | 270 | 5% 1/10W | |
| R658 | 1-216-091-00 | METAL GLAZE | 56K | 5% 1/10W | |
| R659 | 1-216-085-00 | METAL GLAZE | 33K | 5% 1/10W | |
| R660 | 1-216-049-00 | METAL GLAZE | 1K | 5% 1/10W | |
| R661 | 1-216-049-00 | METAL GLAZE | 1K | 5% 1/10W | |
| R662 | 1-216-049-00 | METAL GLAZE | 1K | 5% 1/10W | |
| R663 | 1-216-049-00 | METAL GLAZE | 1K | 5% 1/10W | |
| | | VARIABLE RESISTOR | | | |
| RV651 | 1-228-518-00 | RES, ADJ, METAL GLAZE 1K | | | |
| | | CRYSTAL | | | |
| X651 | 1-577-117-21 | VIBRATOR, CRYSTAL (4.43MHz) | | | |

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*1-631-374-11 VD-13 BOARD
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| | | | | | |
|---|---|---|---|---|---|
| | | CAPACITOR | | | |
| C551 | 1-101-004-00 | CERAMIC | 0.01MF | 50V | |
| C552 | 1-129-713-00 | FILM | 0.0082MF | 5% 50V | |
| C553 | 1-161-379-00 | CAP, SERAMIC | 0.01MF | 25V | |
| | | DIODE | | | |
| D501 | 8-719-911-19 | DIODE 1SS119 | | | |
| | | IC | | | |
| IC514 | 8-759-901-23 | IC SN74LS123N | | | |
| IC515 | 8-759-900-74 | IC SN74LS74AN | | | |
| | | RESISTOR | | | |
| R551 | 1-215-453-00 | METAL | 22K | 1% 1/6W | |

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*1-631-369-11 PW-69 BOARD
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| | | |
|---|---|---|
| *1-533-189-11 | HOLDER, FUSE | |
| 1-506-468-11 | PIN, CONNECTOR 3P | |
| *1-564-321-00 | PIN, CONNECTOR 2P | |
| *1-564-506-11 | PLUG, CONNECTOR 3P | |
| *3-309-144-21 | HEAT SINK | |
| 7-682-547-04 | SCREW +BVTT 3X6 (S) | |

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | CAPACITOR | | | |
| C701 ⚠ | 1-101-002-00 | CERAMIC | 0.0022MF | 400V | |
| C702 ⚠ | 1-101-002-00 | CERAMIC | 0.0022MF | 400V | |
| C703 ⚠ | 1-101-002-00 | CERAMIC | 0.0022MF | 400V | |
| C704 ⚠ | 1-101-002-00 | CERAMIC | 0.0022MF | 400V | |
| C705 | 1-161-074-91 | CERAMIC | 0.047MF | 20% 50V | |
| C706 | 1-161-074-91 | CERAMIC | 0.047MF | 20% 50V | |
| C707 | 1-124-594-11 | ELECT | 0.0047MF | 20% 16V | |
| C708 | 1-124-556-11 | ELECT | 2200MF | 20% 16V | |
| C709 | 1-124-443-00 | ELECT | 100MF | 20% 10V | |
| C710 | 1-101-004-00 | CERAMIC | 0.01MF | 50V | |
| C711 | 1-124-443-00 | ELECT | 100MF | 20% 10V | |
| C712 | 1-101-004-00 | CERAMIC | 0.01MF | 50V | |
| | | DIODE | | | |
| D701 ⚠ | 8-719-500-36 | DIODE D2SB10 | | | |
| D702 | 8-719-911-19 | DIODE 1SS119 | | | |
| D703 | 8-719-110-03 | DIODE RD7.5ESB2 | | | |
| D704 | 8-719-110-03 | DIODE RD7.5ESB2 | | | |
| | | FUSE | | | |
| F701 ⚠ | 1-532-259-00 | FUSE, TIME-LAG (T1.6A/250V) | | | |
| | | IC | | | |
| IC701 ⚠ | 8-759-604-29 | IC M5F7805 | | | |
| IC702 ⚠ | 8-759-604-41 | IC M5F79M05 | | | |
| | | LINE FILTER | | | |
| LFT701 ⚠ | 1-421-765-11 | FILTER, LINE | | | |
| | | IC LINK | | | |
| PS701 ⚠ | 1-532-840-21 | LINK, IC | | | |
| PS702 ⚠ | 1-532-839-11 | LINK, IC | | | |
| | | TRANSISTOR | | | |
| Q701 ⚠ | 8-729-116-57 | TRANSISTOR 2SB1013 | | | |
| Q702 ⚠ | 8-729-900-65 | TRANSISTOR DTA144ES | | | |
| | | RESISTOR | | | |
| R701 | 1-249-409-11 | CARBON | 220 | 5% 1/4W | |
| R702 | 1-249-409-11 | CARBON | 220 | 5% 1/4W | |
| R703 | 1-249-429-11 | CARBON | 10K | 5% 1/4W | |
| R704 | 1-249-442-11 | CARBON | 510 | 5% 1/4W | |
| | | VARIABLE RESISTOR | | | |
| RV701 | 1-228-520-00 | RES, ADJ, METAL GLAZE 470 | | | |

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**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

# FF-31 JK-45 LA-08

| Ref.No | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | *1-631-366-11 | FF-31 BOARD | | | |
| | | ********** | | | |
| | | CAPACITOR | | | |
| C005 | 1-126-154-11 | ELECT | 47MF | | 6.3V |
| C006 | 1-101-005-00 | CERAMIC | 0.022MF | | 50V |
| | | DIODE | | | |
| D001 | 8-719-938-67 | DIODE SLH34MC3 (ON) | | | |
| D002 | 8-719-404-45 | DIODE LN422YP (STOP MOTION) | | | |
| D003 | 8-719-404-45 | DIODE LN422YP (MULTI MEMO) | | | |
| D004 | 8-719-404-45 | DIODE LN422YP (MULTI AUTO) | | | |
| D005 | 8-719-404-45 | DIODE LN422YP (MULTI FLASH) | | | |
| D006 | 8-719-404-45 | DIODE LN422YP (MOSAIC ART) | | | |
| D007 | 8-719-404-45 | DIODE LN422YP (PICTURE ART) | | | |
| D008 | 8-719-404-45 | DIODE LN422YP (FLASH MOTION) | | | |
| D009 | 8-719-404-45 | DIODE LN422YP (ZOOM) | | | |
| D010 | 8-719-420-19 | DIODE LN-424YP (RECALL) | | | |
| D011 | 8-719-109-96 | DIODE RD6.8ES | | | |
| D012 | 8-719-934-11 | DIODE **SLP-151B-60 (STANDBY)** | | | |
| | | IC | | | |
| IC005 | 8-749-900-36 | IC BX-1393 | | | |
| | | RESISTOR | | | |
| R002 | 1-247-804-11 | CARBON | 75 | 5% | 1/4W |
| R003 | 1-249-406-11 | CARBON | 120 | 5% | 1/4W |
| R004 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R005 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R006 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R007 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R008 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R009 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R010 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R011 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R012 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R013 | 1-249-418-11 | CARBON | 1200 | 5% | 1/4W |
| | | SWITCH | | | |
| S001 | 1-554-174-00 | SWITCH, KEY BOARD (ON/STANDBY) | | | |
| S002 | 1-554-174-00 | SWITCH, KEY BOARD (MULTI MEMO) | | | |
| S003 | 1-554-174-00 | SWITCH, KEY BOARD (MULTI AUTO) | | | |
| S004 | 1-554-174-00 | SWITCH, KEY BOARD (MULTI FLASH) | | | |
| S005 | 1-554-174-00 | SWITCH, KEY BOARD (ZOOM) | | | |
| S006 | 1-554-174-00 | SWITCH, KEY BOARD (DIGITAL OFF) | | | |
| S007 | 1-554-174-00 | SWITCH, KEY BOARD (RECALL) | | | |
| S008 | 1-554-174-00 | SWITCH, KEY BOARD (STOP MOTION) | | | |
| S009 | 1-554-174-00 | SWITCH, KEY BOARD (FLASH MOTION) | | | |
| S010 | 1-554-174-00 | SWITCH, KEY BOARD (MOSAIC ART) | | | |
| S011 | 1-554-174-00 | SWITCH, KEY BOARD (PICTURE ART) | | | |
| S012 | 1-554-174-00 | SWITCH, KEY BOARD (EFFECT -) | | | |
| S013 | 1-554-174-00 | SWITCH, KEY BOARD (EFFECT +) | | | |
| | *1-631-367-11 | JK-45 BOARD | | | |
| | | ********** | | | |
| | | CONNECTOR | | | |
| CN351-CN353 | 1-507-846-71 | JACK, PIN (B) (VIDEO IN R/L/V) | | | |
| CN354-CN356 | 1-507-846-71 | JACK, PIN (B) (AUDIO OUT R/L/V) | | | |
| | | FILTER | | | |
| FL301 | 1-421-927-11 | FILTER, NOISE | | | |
| FL302 | 1-421-927-11 | FILTER, NOISE | | | |
| FL303 | 1-421-927-11 | FILTER, NOISE | | | |
| FL304 | 1-421-927-11 | FILTER, NOISE | | | |
| | *1-631-368-11 | LA-08 BOARD | | | |
| | | ********** | | | |
| | | CONNECTOR | | | |
| CN358 | 1-568-800-11 | JACK, PIN (CONTROL L) | | | |
| | | DIODE | | | |
| D301 | 8-719-108-12 | DIODE RD9.1EW | | | |
| | | FILTER | | | |
| FL305 | 1-421-927-11 | FILTER, NOISE | | | |
| | | SWITCH | | | |
| S301 | 1-570-157-11 | SWITCH, SLIDE (VTR A-B) | | | |
| S302 | 1-554-482-00 | SWITCH, SLIDE (VTR 1.2.3) | | | |
| | | MISCELLANEOUS | | | |
| | | ********** | | | |
| | ⚠1-555-795-00 | CORD, POWER | | | |
| IC701 | 8-759-604-29 | IC M5F7805 | | | |
| T701 | ⚠1-449-768-11 | TRANSFORMER, POWER | | | |
| | ⚠ 1-464-768-11 | **MODULATOR,RF(RFU-865)** | | | |

ACCESSORIES AND PACKING MATERIALS
**********

| Part No. | Description | Remark |
|---|---|---|
| A-6768-095-A | COMMANDER ASSY (RMT-453) | |
| 1-551-513-00 | CABLE, COAXAL ASSY | |
| 1-574-316-11 | CORD, CONNECTION | |
| 2-119-103-42 | INDIVIDUAL CARTON | |
| 2-363-023-00 | CUSHION (UPPER) | |
| 2-363-024-00 | CUSHION (LOWER) | |
| 3-695-308-01 | DRIVER, VOLUME | |

HARDWARE LIST
**********

SCREW

| | | | |
|---|---|---|---|
| 7-685-645-79 | SCREW +P | 3X6 | TYPE2 SLIT |
| 7-682-547-04 | SCREW +PTT | 3X6 | (S) |
| 7-685-751-09 | SCREW +PTT | 3X6 | (S) |
| 7-621-773-86 | SCREW +BVTT | 2.6X4 | (S) |
| 7-685-870-01 | SCREW +BVTT | 3X5 | (S) |
| 7-685-871-04 | SCREW +BVTT | 3X6 | (S) |

**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

# SECTION 7
# ELECTRICAL ADJUSTMENTS

**During the adjustment see the parts location diagram relevant to the adjustment on page 62.**

**[Instruments to be used]**

1) Color monitor TV
2) Oscilloscope: 2 phenomena, band 15 MHz or wider, with delay mode
3) Frequency counter (at least 6 digits)
4) PAL pattern generator
5) Digital voltmeter

**[Setup for Adjustment]**

In this adjustment the PAL pattern generator is connected to the VIDEO INPUT 1 terminal and is used as the video input signal.
The oscilloscope is connected to the VIDEO INPUT 1 terminal (CN354) on the JK-45 board for checking the video input signal.
The items to be checked are as follows :

1. That the amplitude of the horizontal synchronization signal is approx. 0.3 Vp-p.
2. That the video signal amplitude is approx. 0.7 Vp-p.
3. That the burst signal amplitude is approx. 0.3 Vp-p.

The video (color bar) signal used for adjustment is shown in Fig. 7-1.

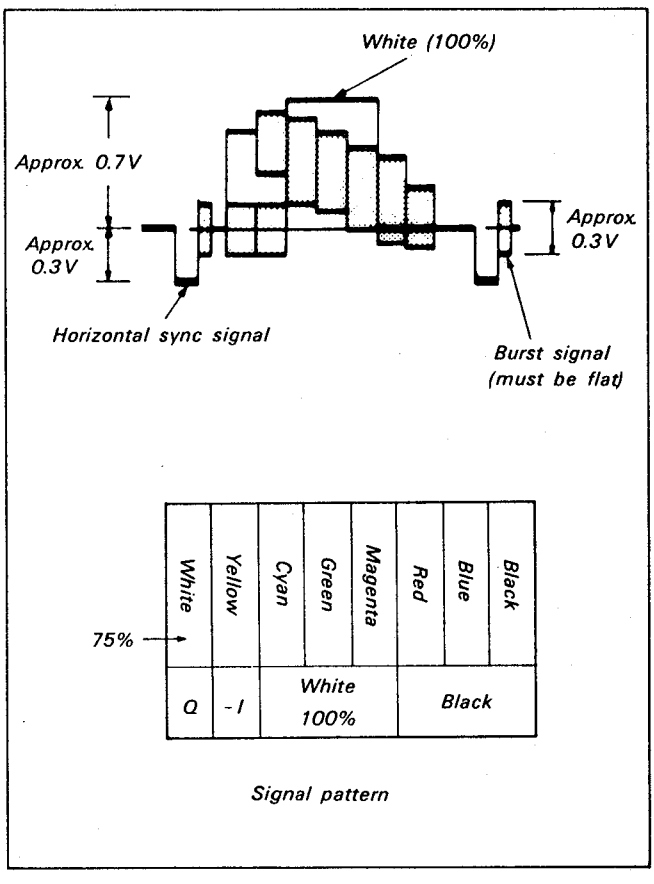



*Fig. 7-1. Color bar signal of pattern generator*

## 7-1. POWER SUPPLY SECTION ADJUSTMENT (PW-69 BOARD)

Adjustment and confirmation are made with the power supply ON.

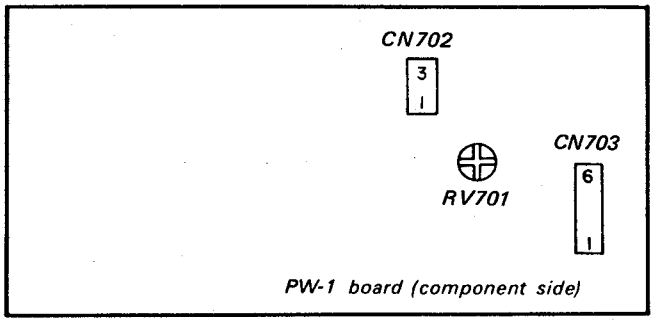



*Fig. 7-2. Power supply section adjustment*

| | |
|---|---|
| Signal | Arbitrary |
| Measuring Instrument | Digital voltmeter |
| 5V adjustment | |
| Measurement point | Pin ③ of CN704 |
| Adjusting Element | RV701 |
| Specified Value | 5.2±0.1Vdc |
| +5V confirmation | |
| Measurement pointd | Pin ① of CN703 |
| Specified Value | 5.0±0.1 Vdc |
| STBY +5V confirmation | |
| Measurement point | Pin ② of CN703 |
| Specified Value | 5.2±0.1 Vdc |
| STBY −5V confirmation | |
| Measurement point | Pin ⑤ of CN703 |
| Specified Value | −5.2±0.1 Vdc |

Adjusting method :

1) Set the voltage at Pin ② of CN703 to 5.0±0.1Vdc with RV701.

Checking method:

1) Confirm that the various power supply voltages satisfy the specified values.

## 7-2. VIDEO SECTION ADJUSTMENTS

The color video signal supplied from the pattern generator is used as the video input signal for video section adjustment. Confirm that the sync signal and color burst signal match the specifications designated in Fig. 7-1 of setup for adjustment. As a rule, adjustment is made in the following order.

1. Video signal input/output system adjustment
2. Digital system adjustment

### 7-2-1. Video Signal Input/Output System Adjustment

**1. VIDEO OUT level (6dB amp) adjustment (VI-67 board)**

| | |
|---|---|
| Mode | Digital OFF |
| Signal | Color bar |
| Measurement Point | TP205 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV202 |
| Specified Value | 1.00±0.05 Vp-p |

**Note:** Video terminals are terminated at 75Ω.

Adjusting method :

1) Adjust with RV264 to 1.00±0.05Vp-p.

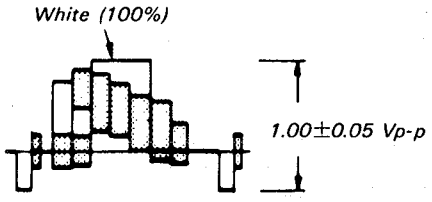



*Fig. 7-3. VIDEO OUT level adjustment*

**2. Peaking adjustment**

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | TP205 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV204 |
| Specified Value | 1.00±0.05 Vp-p |

**Note:** 1) Video terminals are terminated at 75Ω.
2) Set the flash interval to shortest with the "EFFECT+" button.

Adjusting method :

1) Adjust with RV204 to 1.00±0.05Vp-p.

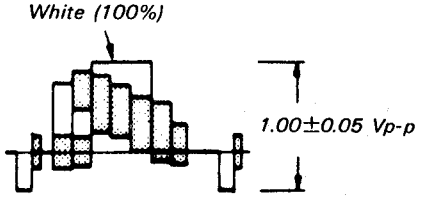



**Fig. 7-4. Peaking adjustment**

### 7-2-2. Digital System Adjustment

#### 1. Confirmation of crystal oscillation (DI-23 board)

| | |
|---|---|
| Mode | Digital OFF |
| Signal | No signal |
| Measuring Instrument | Frequency counter |

Checking method :

1) Confirm that the oscillation frequency at Pin ⑫ of IC401 is approx. 17.73MHz.
2) Confirm that the oscillation frequency at Pin ㊸ of IC505 is approx. 20.0MHz.
3) Confirm that the oscillation frequency at Pin ㉗ of IC504 is approx. 8.0MHz.
4) Adjust CT401 the oscillation frequency at Pin ⑱ of IC401 is approx 4.433619MHz±30Hz.
5) Adjust CT651 the oscillation frequency at Pin ⑬ of PS-197 board is approx 4.433619MHz±10Hz.

#### 2. Encoder carrier balance adjustment (DI-23 board)

**(1) Method using vectorscope**

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | Video output terminal (CN351 on JK-45 board) |
| Measuring Instrument | Vectorscope |
| Adjusting Element | RV454 (R-Y C.BAL)<br>RV452 (B-Y C.BAL) |
| Specified Value | White luminance dot lined up with black luminance dot |

Adjusting method :

1) Alternate rotation of RV452 and RV454 so that the white luminance dot and black luminance dot are lined up with each other.

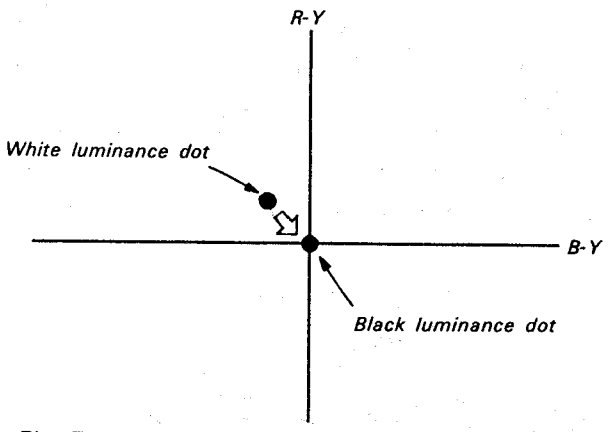



*Fig. 7-5. Encoder carrier balance adjustment (1)*

**(2) Method using oscilloscope**

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | Pin ⑤ of CN401(DI V OUT) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV454 (R-Y C.BAL)<br>RV452 (B-Y C.BAL) |
| Specified Value | Minimum chroma component in "white" section |

Adjusting method :

1) Alternate rotation of RV454 and RV452 so that the chroma component (4.43MHz) is minimum in the "white"section.

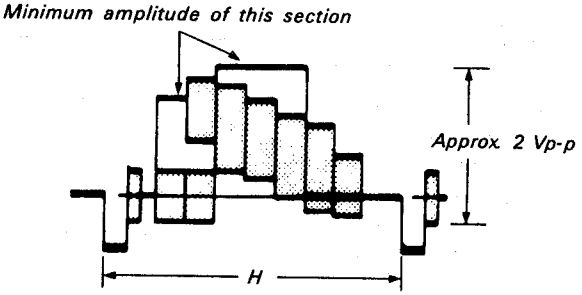



*Fig. 7-6. Encoder carrier balance adjustment (2)*

### 3. 90°/180° phase adjustment (DI-23 board)

**Method using vectorscope**

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | Video output terminal (CN401 on JK-45 board) |
| Measuring Instrument | Vectorscope |
| Adjusting Element | CT652 : PS-197 board<br>RV651 : VI-23 board |
| Specified Value | R-Y signal luminance line, R-Y axis |

**Note:** Terminate the vectorscope at 75Ω.

1) Connect the following locations with jumper wire.
   1. Emitter of Q302−GND
2) Adjust with CT652 so that the R-Y luminance line and origin poit overlap.
3) Open the following locations with wire.
   1. Emitter of Q302−GND
4) Adjust with RV651 so that the R-Y luminance line and R-Y axis overlap.

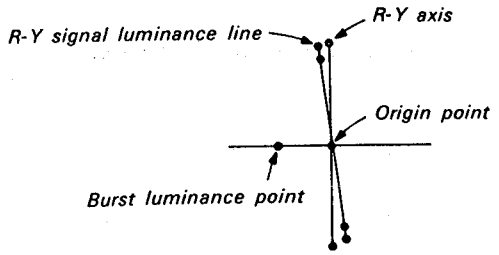



*Fig. 7-7. PLL fsc phase adjustment (1)*

### 4. Burst level adjustment (DI-23 board)

**(1) Method using vectorscope**

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | Video output terminal (CN401 on JK-45 board) |
| Measuring Instrument | Vectorscope |
| Adjusting Element | RV451, 453 |
| Specified Value | Burst luminance point at proper position (75%) |

**Note:** Terminate the vectorscope at 75Ω.

Adjusting method :

1) Adjust with RV451, 453 so that burst luminance point is at proper position (75%).

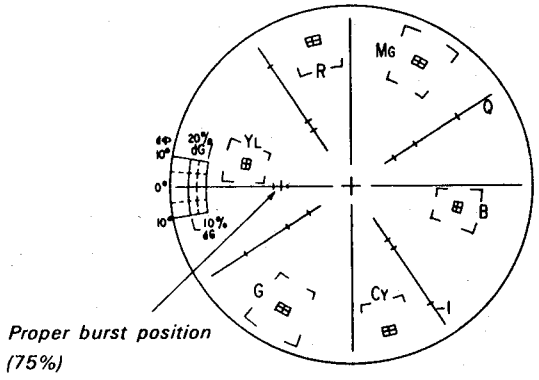



*Fig. 7-8. Burst level adjustment (1)*

**(2) Method using oscilloscope**

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | Pin ⑤ of CN401(DI V OUT) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV451, 453 |
| Specified Value | 300±30mVp-p |

Adjusting method :

1) Adjust with RV451, 453 so that the burst level is 300±30mVp-p.

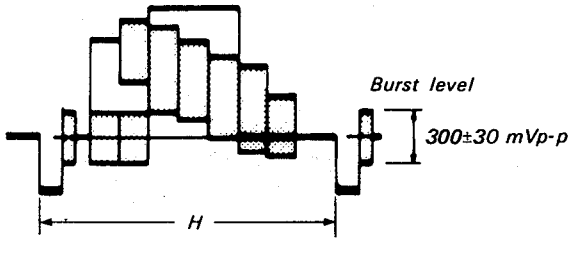



*Fig. 7-9. Burst level adjustment (2)*

## 5. Chroma level adjustment (DI-23 board)

### (1) Method using vectorscope

| | |
|---|---|
| Mode | Flash motion |
| Signal | Color bar |
| Measurement Point | Video output terminal (CN351 on JK-45 board) |
| Measuring Instrument | Vectorscope |
| Adjusting Element | RV401 |
| Specified Value | Burst luminance point at proper position (75%) |

**Note:** Terminate the vectorscope at 75Ω.

Adjusting method:

1) Adjust with RV401 so that burst luminance point is at proper position (75%).

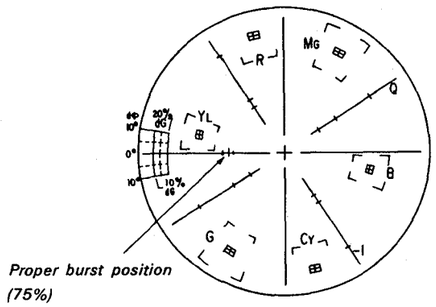
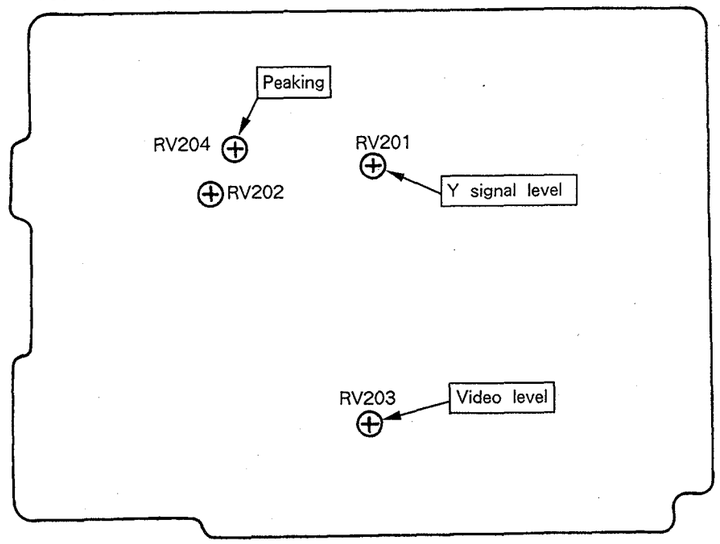


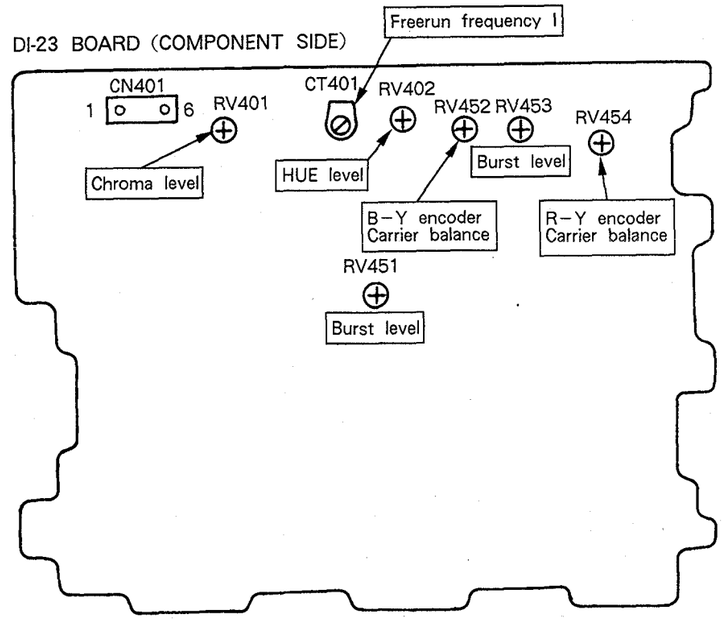

Fig. 7-10. Chroma level adjustment (1)



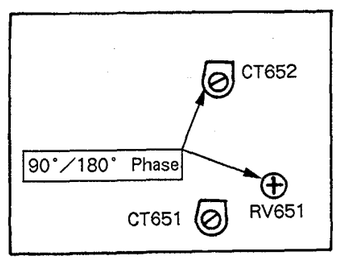
VI-67 BOARD (COMPONENT SIDE)




DI-23 BOARD (COMPONENT SIDE)




PS-197 BOARD (COMPONENT SIDE)




PD-20 BOARD (COMPONENT SIDE)